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WILDLIFE REVIEW

NUMBER 103 SEPTEMBER 1961

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WILDLIFE REVIEW

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Except as indicated, abstracts are by Kenneth J. Chiavetta, editor,
and Stephen V. Goddard, wildlife technician.

Beltran, Enrique, editor. LOS RECURSOS NATURALES DEL SURESTE Y SU APROVECHAMIENTO. [THE NATURAL RESOURCES OF THE SOUTHWEST AND THEIR USE.] Inst. Mexicano de Recursos Naturales Renovables (Mexico D.F.). 3 volumes: Vol. I. xviii + 100 p., Vol. II. 326 p., Vol. III. 354 p., illus. 1959. [From Biol. Abstr. 36(13), 1961.] WR 103: 2

The area includes Belize, Peten in Guatemala, and, in Mexico, part of Tabasco, most of Campeche, Quintana Roo, and Yucatan. Volume 1 is an introduction which considers "situation, problems and perspectives." The chapters of volume 2 deal with the history, geology and geohydrology, the climate, physiographic features, soils, vegetation studies, and forests and their use. The third volume deals with agriculture, the cultivation of heneguen, livestock production, game mammals, fishing and fisheries, anthropology, human populations, and health. In the section on the vegetation, 26 primary associations and 5 secondary associations are described. A catalog of native plants is found in the chapter on the vegetation.

Bonshtedt, Kh. [CONSERVATION IN THE GERMAN DEMOCRATIC REPUBLIC.] Akad. Nauk SSSR Kommissiya po Okhrane Prirody, Byull. 4: 110-113. 1960. [Listed in Bibliog. Agr. 25(6), 1961.] WR 103: 2

In Russian.

Dubinin, V. B., editor. CONSERVATION OF NATURAL RESOURCES AND THE ESTABLISHMENT OF RESERVES IN THE USSR. (1957.) Comm. Conserv. Nat. Resources, Acad. Sci. USSR (Moscow) Bull. no. 2. [v] + 143 p., illus. 1960. Published for the Natl. Science Foundation and the Dept. of Interior by the Israel Program for Scientific Translations. [Available from the Office of Technical Services, U. S. Dept. Commerce, Washington 25, D. C. Price $1.50.] WR 103: 2

Translated from the Russian. Contents: Activities of the Commission for the Conservation of Natural Resources of the Academy of Sciences of the USSR in the first year of its existence; The conservation of natural resources in Kirgizia; Fruit forests of southern Kirgizia; The conservation of natural resources in Azerbaijan; Problems of the conservation of the animal life of Armenia; The conservation of forests and the organization of reserves in Armenia; The game (fauna) of Lithuania and its enrichment; Problems of the conservation of natural resources in the Latvian SSR; Conservation of natural resources in the Estonian SSR; Contemporary reclamation problems of agroforestry in combating drought and erosion; Conservation and rational exploitation of forests at the northernmost limit of their distribution; Conservation of maritime game of Chukot; Maritime fur-bearing animals of the Kuril Islands and prospects for their restoration; Dynamics of the steppe antelope domain and the numbers of their stock; Conservation of natural resources in the Republic of Czechoslovakia.

Fukarek, P. [CONSERVATION IN YUGOSLAVIA.] Akad. Nauk SSSR, Kommissiya po Okhrane Prirody Byull. 4: 121-125. 1960. [Listed in Bibliog. Agr. 25(6), 1961.] WR 103: 2

In Russian.

Getel', V. [CONSERVATION IN POLAND.] Akad. Nauk SSSR, Kommissiya po Okhrane Prirody Byull. 4: 114-120. 1960. [Listed in Bibliog. Agr. 25(6), 1961.] WR 103: 2

In Russian.

Kerr, Robert S., chairman. WATER RESOURCES ACTIVITIES IN THE UNITED STATES / FISH AND WILDLIFE AND WATER RESOURCES. 86th Congr. 2d Session, Com. Print 18. xii + 69 p., illus. Apr. 1960. WR 103: 2

A select committee report on national water resources containing the following chapters: (1) Importance of fish and wildlife; (2) Fish and wildlife in relation to water resources; (3) Future demands for fish and wildlife resources; (4) Water requirements for fish and wildlife; and (5) Problems in achieving adequate recognition for fish and wildlife in the water resources program.

SOILS

Baker, Francis J., and others. SOIL SURVEY OF PAULDING COUNTY, OHIO. US Soil Conserv. Serv., Ser. 1954, no. 12. i + 95 p., 11 figs. + folded maps based on aerial photos. Oct. 1960. Sold by Supt. Documents. WR 103: 3

Schneider, Ivan F., and others. SOIL SURVEY OF SANILAC COUNTY, MICHIGAN. US Soil Conserv. Serv., Ser. 1953, no. 10. ii + 83 p., 16 figs. + unit maps of the county based on aerial photos and bound in. May 1961. Sold by Supt. Documents. WR 103: 3

Seay, Billy D., and others. SOIL SURVEY OF CORTLAND COUNTY, NEW YORK. US Soil Conserv. Serv., Ser. 1957, no. 10. i + 120 p., 15 figs. + single-fold maps based on aerial photos and bound in. May 1961. Sold by Supt. Documents. WR 103: 3

Wagner, Richard J., and others. SOIL SURVEY OF THE SAN MATEO AREA, CALIFORNIA. US Soil Conserv. Serv., Ser. 1954, no. 13. i + 111 p., 29 figs. + single-fold maps based on aerial photos and bound in. May 1961. Sold by Supt. Documents. WR 103: 3

BIBLIOGRAPHIES, DIRECTORIES, BIOGRAPHY, HISTORY

Christensen, Earl M., compiler. (Brigham Young Univ., Provo, Utah.) BIBLIOGRAPHY OF UTAH AQUATIC BIOLOGY. Proc. Utah Acad. Sci. Arts & Letters 33: 91-100. 1956. WR 103: 3

Gibson, Dorothy, and Lillian A. Ross. (Chicago Nat. Hist. Museum, Chicago, Ill.) PUBLICATIONS OF THEODOR KARL JUST. Am. Midl. Nat. 65(2): viii-xvi. Apr. 1961. WR 103: 3

A bibliography of 238 items arranged by date of publication.

Schultz, Vincent. (Atomic Energy Comm., Washington, D. C.) AN ANNOTATED BIBLIOGRAPHY ON THE USES OF STATISTICS IN ECOLOGY--A SEARCH OF 31 PERIODICALS. US Atomic Energy Comm., Office Tech. Inf. TID-3908. vii + 315 p. 1961. Available from the Office of Tech. Serv., Dept. Commerce, Washington, D. C. at $3.00. WR 103: 3

This bibliography is the result of an extensive literature search for uses of statistics in the fields of wildlife, fisheries, limnological, oceanographic, and related research. Complete references of articles related to the fields of interest that appeared in statistical periodicals are listed as well as complete references and details on statistical usage appearing in "non-statistical" journals. The latter have been subdivided into the sections: Wildlife, Fisheries, Limnology, Plants, Insects, and Miscellaneous.

Smith, Anya F., Anne Broome, and Harold C. Anderson. OUR 25-YEAR INDEX TO THE LIVING WILDERNESS. Living Wilderness no. 75. 51 p. Index Issue 1961. WR 103: 3

"The index lists titles (of articles, of books reviewed, etc.), authors and subjects. It indicates when an article is illustrated (ills.) and lists separately illustrations not otherwise referred to articles or authors." Living Wilderness was first issued in Sept. 1935.

PLANTS--GENERAL, ECOLOGY, TECHNIQUES

Batias, A. L'HÉLICOPTÈRE AUXILIAIRE DU REBOISEUR DE MONTAGNE. [THE HELICOPTER AS AUXILIARY TO THE MOUNTAIN AFFORESTER.] Rev. for. franc. 13(1): 25-30, 3 photos. 1961. [From Commonwealth Forestry Bur., Centralized Title Serv. Cards, 8 May 1961.] WR 103: 3

In French. Describes operations for afforesting abandoned alpine pastures in Savoy, where the expense of making a "jeepable" access road was too high to make motor transport practicable, and planting stock and fertilizers were therefore transported to the planting site by helicopter.--Courtesy/ Frank M. Johnson.

Budowski, Gerardo. (Inter Am. Inst. Agr. Sci., Turrialba, Costa Rica.) THE ECOLOGICAL STATUS OF FIRE IN TROPICAL AMERICAN LOWLANDS. Bol. Mus. Cienc. Nat. 4-5(1/4): 113-127. 1958-1959. [From Biol. Abstr. 36(12), 1961.] WR 103: 4

Fire has been active in tropical regions since very early times and has greatly affected the vegetation. Its frequency and intensity through historic times can be related to human activity. Light[n]ing fires are possible but are much less frequent. Fire is most destructive in those regions where a rainy season alternates with a long dry season and deciduous forests are climax. During the dry season fire is set mostly for grazing, agricultural clearing, and hunting purposes. The result is a gradual replacement of the forest by a savanna vegetation, with drought and fire resistant grasses and trees, the soil deteriorates through compacting and formation of impervious pans. The forest fauna gives way to a savanna fauna. Fire also favors the establishment and maintenance of tropical pines.--Author.

Cain, Stanley A., and G. M. de Oliveria Castro. MANUAL OF VEGETATION ANALYSIS. Harper, N. Y. xvii + 325 p., illus. 1959. $7.00. [From review in Science 131(3408), 1960.] WR 103: 4

The 12 chapters of this excellent book begin with a discussion of floristic methods for the analysis of vegetation, a realistic treatment of the nature of the plant community, a survey of the major types of vegetation in the world, and an outline of the principal methods for the analysis of vegetation. Following this introductory material are discussions of the problems of number, pattern, and dominance, with particular emphasis upon, respectively, abundance and density, frequency, and coverage; a treatment of the troublesome problems that are inherent in the selection of sizes for sample units; discussions of the methods of combining community characteristics, and of the concepts involved in the development of the theory of the community; and finally there is a discussion of life form and leaf size. A glossary, a list of cited literature (425 titles), and an index are included. The whole is illustrated with well-chosen charts, maps, diagrams, and tabular material. The book is distinctive because it is one of the few published in this country which draws illustrative material from the tropics and subtropics.--H. M. Raup.

Devred, R. F. E. (Natl. Inst. for the Study of Agronomy of the Belgian Congo, Yangambi.) NOUVELLE MÉTHODE MÉCANOGRAPHIQUE D'INVESTIGATION PHYTO-SOCIOLOGIQUE EN FORÊT ÉQUATORIALE. [A NEW, CARD-PUNCH METHOD FOR PHYTO-SOCIOLOGICAL STUDIES IN THE EQUATORIAL FOREST.] Vegetatio 10(1): 57-66. 1961. [From Biol. Abstr. 36(13), 1961.] WR 103: 4

The method suggested involves characterizing each species ecologically, morphologically, and chorologically. The data are put on punch-cards. The data from stand surveys are also punched onto cards. Association tables are made up using the latter cards, and the individual species data are compared with these tables. Rearrangements of the species are made according to the various species' properties. Since the stand surveys were made by vegetation layers, the dynamics of the associations can be analyzed. Thus ecological groups of species can be compared with syngenetic groups of species in the final synthetic table. 28 references.--From abstr. by J. Major.

Fosberg, F. R. THE STUDY OF VEGETATION IN EUROPE. Am. Inst. Biol. Sci. Bull. 11(3): 17-19. June 1961. WR 103: 4

Many European countries are vastly ahead of the United States in vegetation studies. Vegetation mapping is being highly developed in several countries, notably France and the USSR.

Holmsgaard, E., and H. C. Olsen. VEJRETS INDFLYDELSE PÅ BØGENS FRUGTSAETNING. [THE EFFECT OF WEATHER ON THE PRODUCTION OF BEECH MAST.] Forstl. Forsøgsv. Danm. 26(3): 345-370, illus. 1960. [From Commonwealth Forestry Bur., Centralized Title Serv. Cards, 24 Apr. 1961.] WR 103: 4

In Danish with English summary. Sixteen references.--Courtesy/ Frank M. Johnson.

Lebedeva, L. S. [CONTRIBUTION TO THE STUDY OF SPRING FOOD AND PASTURES OF SAIGA ON THE RIGHT BANK OF THE VOLGA.] Zool. Zhur. 39(9): 1438-1441. Sept. 1960. [From J. Mammal. 42(2), 1961.] WR 103: 5
In Russian with English summary.

Potter, Loren D., and D. Ross Moir. (Univ. N. Mex., Albuquerque.) PHYTOSOCIOLOGICAL STUDY OF BURNED DECIDUOUS WOODS, TURTLE MOUNTAINS NORTH DAKOTA. Ecology 42(3): 468-480, 11 figs. July 1961. WR 103: 5

Rey, P. ESSAI DE PHYTOCINÉTIQUE BIOGÉOGRAPHIQUE. [ESSAY ON BIOGEOGRAPHICAL PHYTOKINETICS.] Centre National de la Recherche Scientifique (Paris VII^e). 399 p., illus. 1960. Price NF42. [From Biol. Abstr. 36(14), 1961.] WR 103: 5
[In French.] Through statistical data presented in the form of charts and maps, the biological, ecological and strictly geographical factors influencing and determining the distribution of plants are analyzed both individually and in correlation with each other. The chapters cover: Cartographic documentation; Natural environments--the geographical aspect of biographical; Vegetational series--the biological aspect of biogeography; Elements of phytokinetics; Phytokinetics of North America; and Phytokinetics of Southwest France. A glossary and extensive bibliography conclude the book. Numerous original maps and charts illustrate the author's conclusions about ecological plant geography.--W. C. Steere.

Thomson, G. W., and G. H. Deitschman, compilers. BIBLIOGRAPHY OF WORLD LITERATURE ON THE BITTERLICH METHOD OF PLOTLESS CRUISING. 1947-1959. Agr. & Home Econ. Expt. Sta., Iowa State Univ. 10 p. 1959. [From Commonwealth Forestry Bur., Centralized Title Serv. Cards, 5 June 1961.] WR 103: 5
Contains 118 references, plus a further 14 for the same 12-year period included as a supplement by the compilers in Apr. 1960.--Courtesy/ Frank M. Johnson.

Volkov, F. I. [SOME DATA ON THE INFLUENCE OF THINNING AND SOIL CULTIVATION ON THE FRUITING OF OAK.] Soobšč. Inst. Les. no. 8: 3-12, 2 photos. 1957. [From Commonwealth Forestry Bur., Centralized Title Serv. Cards, 20 Mar. 1961.] WR 103: 5
In Russian. Thirteen references.--Courtesy/ Frank M. Johnson.

Woods, Frank W. (Duke Univ., Durham, N. C.) BIOLOGICAL ANTAGONISMS DUE TO PHYTOTOXIC ROOT EXUDATES. Bot. Rev. 26(4): 546-569. Oct.-Dec. 1960. WR 103: 5
Discusses excreted substances, exudates of woody plants, exudates of grasses and herbs, interactions of higher plants and microorganisms, and ecological relationships. There is a 217-item bibliography.--Neil Hotchkiss.

PLANTS--FLORAS, COMMUNITIES, TAXONOMY

Brandhorst, Carl Theodore. THE MICROCOMMUNITIES ASSOCIATED WITH CERTAIN PRAIRIE PLANTS. Ph.D. thesis, Univ. Nebr. 121 p. 1961. [Long abstr. in Dissertation Abstr. 21(12), 1961.] WR 103: 5

Burk, John C. (Univ. N. C., Chapel Hill.) A BOTANICAL RECONNAISSANCE OF PORTSMOUTH ISLAND, NORTH CAROLINA. J. Elisha Mitchell Sci. Soc. 77(1): 72-74. May 1961. WR 103: 5
A list of 73 species of vascular plants collected in Aug. 1959, and a discussion of several distinctive features of the vegetation of Portsmouth Island.

Egler, Frank E. (Aton Forest, Norfolk, Conn.) A CARTOGRAPHIC GUIDE TO SELECTED REGIONAL VEGETATION LITERATURE / WHERE PLANT COMMUNITIES HAVE BEEN DESCRIBED. PART II. SOUTHEASTERN UNITED STATES. Sarracenia 6: 1-87, 14 figs., polycopied. May 1961. WR 103: 5
Similar in style and format to Part I (Northeastern states) which was listed in WR 98: 6. Part II deals with the vegetation literature of Ala., Ark., Del., Fla., Ga., Ky., La., Md., Miss., N. C., S. C., Tenn., Va., and W. Va. [Future issues of Sarracenia will be published at the New York Botanical Garden, Bronx Park, New York City 58, N. Y.]

PLANTS--FLORAS, COMMUNITIES, TAXONOMY--Continued

Keener, C. S. A PRELIMINARY CATALOGUE OF THE FLORA OF LEBANON COUNTY, PENNSYLVANIA. Bartonia 30: 1-15. 1959/1960. [From Bibliog. Agr. 25(5), 1961.] WR 103: 6

Lebrun, J. (Univ. Louvain, Belgium.) QUELQUES REMARQUES SUR LA FLORE ET LA VÉGÉTATION DU CANADA. (ONTARIO MÉRIDIONAL - QUÉBEC, RÉGION DE MONTRÉAL.) [SOME REMARKS ON THE FLORA AND VEGETATION OF CANADA (SOUTHERN ONTARIO - QUÉBEC AND VICINITY OF MONTREAL.] Vegetatio 10(1): 25-41. 1961. [From Biol. Abstr. 36(13), 1961.] WR 103: 6

[In French] with English summary. Observations were made in the boreal, evergreen forest and in the deciduous forest. This Canadian flora is composite with a surprisingly high representation of tropical families and genera. At the same time it has many arctic-boreal taxa. The microthermal species occupy boreal biotopes; the megathermal taxa occupy open sites where they are exposed to summers of tropical heat. The eastern Canadian flora seems to be "young" with native members lacking to fill secondary biotopes which, in fact, are now occupied by aliens. In general the autochthonous flora lacks species of xerothermic grasslands and related communities. 47 references.--From abstr. by J. Major.

Strickler, Gerald S. VEGETATION AND SOIL CONDITION CHANGES ON A SUBALPINE GRASSLAND IN EASTERN OREGON. Pacific NW Forest & Range Expt. Sta., Res. Paper 40. ii + 46 p., 32 figs. May 1961. WR 103: 6

Photographs and plot records taken in 1956-7 show a tremendous improvement from the 1938 soil and vegetation conditions in the Tenderfoot Basin. Importantly, the increase in density and production of green fescue, needle-grasses, and sedges--the principal forage species on the study area--showed that overall use in the basin had been controlled by obtaining conservative use of the key species--green fescue. The studies also show the effect of loss of topsoil and the invasion and increase of secondary species on the succession of vegetation after 1938.--From auth. concl.

Thorne, Robert F., and Tom S. Cooperrider. (State Univ. Iowa, Iowa City.) THE FLORA OF GILES COUNTY, VIRGINIA. Castanea 25(1): 1-53. March 1960. WR 103: 6

Describes the area and gives notes on the distribution of the species of ferns and flowering plants.--Neil Hotchkiss.

WILDLIFE--BIOTAS, ECOLOGY, NATURAL HISTORY

Gillespie, Walter Lee. BREEDING BIRDS AND SMALL MAMMAL POPULATIONS IN RELATION TO THE FOREST VEGETATION OF THE SUBARCTIC REGION OF NORTHERN MANITOBA. Ph.D. thesis, Univ. Ill. 129 p. 1960. [From Dissertation Abstr. 21(10), 1960.] WR 103: 6

Studies of forest vegetation and the populations of breeding birds and small mammals using them were conducted in 3 different forest types during 1956-8. Greatest number of species and the highest density of individual birds were found in the forest area intermediate in age and density. This area also had the highest total population of mammals. The factors which may control the abundance and distribution of the various animal communities are discussed.

Gillham, Mary E. ALTERATION OF THE BREEDING HABITAT BY SEA-BIRDS AND SEALS IN WESTERN AUSTRALIA. J. Ecol. 49(2): 289-300, 2 figs. June 1961. WR 103: 6

The large colonies of nesting sea-birds tend to modify the vegetation. These may completely annihilate the vegetation and make the habitat unsuitable for nesting by any birds. Plant cycles involving degeneration of climax communities to the point where all plants are destroyed and the subsequent regeneration to the subclimax communities are discussed.--From auth. summ.

Golley, Frank B. (Univ. Ga., Athens.) ENERGY VALUES OF ECOLOGICAL MATERIALS. Ecology 42(3): 581-584. July 1961. WR 103: 7

Summation and evaluation of the variation between caloric values of plants and animals. Analysis of more than 600 records shows significant differences between plant parts, between vegetation collected in different seasons, and between vegetation from different ecological communities. Ecologists should determine directly the energy content of ecological materials when studying energy flow through natural systems.--From auth. summ.

Natl. Museum Canada. CONTRIBUTIONS TO ZOOLOGY, 1959. Canada Dept. Northern Affairs & Natl. Resources, Natl. Museum Canada, Bull. no. 172, Biol. Ser. no. 65. iv + 135 p., illus. 1961. $1.00. WR 103: 7

This publication contains the following articles which may be of interest to wildlifers: Biological investigations at Isachsen, Ellef Ringes Island, N.W.T., by S. D. MacDonald; Notes on Newfoundland birds, by W. Earl Godfrey; Notes on Canadian mammal specimens and types in the British Museum (Natural History), London, by A. W. F. Banfield; Notes on the mammals of the Kluane Game Sanctuary, Yukon Territory, by A. W. F. Banfield.

Tester, John R., and William H. Marshall. (Univ. Minn., Minneapolis.) A STUDY OF CERTAIN PLANT AND ANIMAL INTERRELATIONS ON A NATIVE PRAIRIE IN NORTHWESTERN MINNESOTA. Minn. Museum Nat. Hist. Occasional Papers no. 8. viii + 51 p., 17 figs. 1961. WR 103: 7

Detailed descriptions of the treatments; the methods of vegetation analysis; the method of censusing bird, mammal, and insect populations; and the techniques of statistical analysis are given for a study carried out in Wis. during the growing seasons of 1957-9. Some of the dynamic aspects of a climax prairie community are discussed on the basis of this study. The influence of land use on the organisms studied is demonstrated even though the climax status of the community did not appear to be actually altered by two or three years of treatments by mowing, burning, or grazing.--From auth. summ.

WILDLIFE--NATURAL AREAS & REFUGES

Brockman, Frank C. NATIONAL PARKS OF THE WORLD. Am. Forests 67(6): 41-43, 51-52. June 1961. WR 103: 7

This report provides a brief history of the initial development of national parks in several countries. The acreage in national parks for each of the 50 countries considered is tabulated. The larger national parks (one million acres or more in size) of the world are listed.

Carter, R. L. (Dept. Nat. Resources, Regina, Saskatchewan.) THE CHALLENGE OF PARK DEVELOPMENT. Blue Jay 19(2): 99-101, 1 fig. June 1961. WR 103: 7

An increase in leisure time, a more mobile population, higher income level, and a large increase in population have brought about a rapid increase in the use of Canadian National Parks.

WILDLIFE--MORPHOLOGY, PHYSIOLOGY, BEHAVIOR, MIGRATION

Bubenik, Antonin. GRUNDLAGEN DER WILDERNÄHRUNG. [FOUNDATIONS OF WILDLIFE NUTRITION.] Deutscher Bauerverlag, Berlin. 299 p., 25 figs., 35 tables. 1959. DM 14.20 ($3.50). [From long review by Richard D. Taber in Forest Science 7(2), 1961.] WR 103: 7

"The present volume is written for the sportsman and the land manager, as a review of the current knowledge in the field of nutrition and a guide to supplemental feeding. It embodies a growing appreciation of the need for land managers to understand the natural traits of wild animals and to adapt their methods to them. The first six pages of the book cover the fundamentals of life processes and the chemical composition of plants and animals. Next comes a more detailed (58 pages) exposition of the nutrients and constituents of the animal body, the nutritional physiology of wild animals, and a consideration of dietary deficiencies and their effects. The main portion of the book consists of two parts, one devoted to birds and the other to mammals. Each is

introduced with a discussion of individual forms. Under birds, only the partridge, the pheasant, and the dabbling ducks (as a group) are covered. Under mammals are the hare and rabbit, wild boar, mouflon, chamois, roe deer, red deer, and fallow-deer. The reviewer sees in this volume a step away from the highly artificialized wildlife production of central Europe and toward the ecological integration of wildlife management with other land uses."

Howard, Walter E. (Univ. Calif., Davis.) INNATE AND ENVIRONMENTAL DISPERSAL OF INDIVIDUAL VERTEBRATES. Am. Midl. Nat. 63(1): 152-161, 2 figs. Jan. 1960. WR 103: 8

An animal possessing an innate dispersal trait is predisposed to voluntarily leave home at puberty and disperse into surroundings beyond the confines of its parental home. The "purposiveness" of this innate dispersal instinct is not for the individual's benefit, but it does have distinct survival value for the species. Five ways in which this dispersal trait benefits the species are presented. An animal possessing an environmental dispersal trait will tend to remain where he was born. If the animal eventually selects a new home range, it is usually within the confines of the home range of its parents. The animal will have a strong homing tendency and move only as far as forced by population pressure factors. Environmental dispersal has only local significance, whereas innate dispersal is of geographic importance.--From auth. summ.

Orr, Robert T. VERTEBRATE BIOLOGY. W. B. Saunders Co. (Philadelphia). x + 400 p., illus. 1961. $7.50. WR 103: 8

This text may best be described as refreshing evidence of increasing scientific and public awareness of a need for a text that spans the gap for college students and laymen between the fundamental zoological discipline and "basic principles and theories relating to distribution, speciation and behavior of vertebrates." No attempt is made to include all material found in general zoological texts; instead condensed essential zoological information (particularly characteristics important in systematic and ecological considerations) is presented. Following treatment of individual classes of vertebrates are discussions of systematics, distribution, territory and home range, population movements, dormancy, reproduction, growth and development, and population dynamics. Examples, chiefly drawn from literature on American vertebrates, are well used to illustrate discussions. The value of this work is increased by excellent lists of recommended references following each chapter. An amazingly complete coverage of major characters and important examples of theories and principles is presented. The writing is good but a somewhat terse or abstract style is required to permit the scope of coverage. This pioneering text is of particular value to conservationists, field workers, and teachers as well as interested non-professionals in bringing together so well in one work so many related disciplines.--James S. Lindzey.

Schwartzkopff, J. (Univ. Munich, Germany.) PHYSIOLOGIE DER HÖHEREN SINNE BEI SÄUGERN UND VÖGELN. [PHYSIOLOGY OF THE HIGHER SENSES IN MAMMALS AND BIRDS.] J. Ornithol. 101(1/2): 61-91. 1960. [From Biol. Abstr. 36(14), 1961.] WR 103: 8

[In German.] A review with long bibliography containing some unpublished research.--D. E. Davis.

WILDLIFE--EFFECTS OF CHEMICALS, WEATHER, CARS, ETC.

Al-Azawi, Abdulla F., Dale M. Norris, Jr., and John E. Casida. (Univ. Wis., Madison.) HAZARDS ASSOCIATED WITH THE IMPLANTATION OF TETRAM INTO ELM TREES FOR DUTCH ELM DISEASE CONTROL. J. Econ. Entomol. 54(1): 127-129. 1961. [From Biol. Abstr. 36(11), 1961.] WR 103: 8

Tetram (O,O-diethyl S-(β-diethylamino)-ethyl phosphorothiolate hydrogen oxalate) administered by trunk implantation is effective in preventing infection of elm trees with the Dutch elm fungus through controlling the bark beetle vector. Tetram is of such high general toxicity to animals and is so persistent in the elm that several hazards would be associated with its use for Dutch elm disease control. Leaves dropping in the fall from trees treated in the spring are very toxic to mammals and earthworms ingesting them, and the smoke generated on burning such leaves can effect cholinesterase depression in mammals.--Authors.

Cramp, Stanley, chairman. THE DEATHS OF BIRDS AND MAMMALS CONNECTED WITH TOXIC CHEMICALS IN THE FIRST HALF OF 1960. REPORT NO. 1 OF THE COMMITTEE ON TOXIC CHEMICALS. Roy. Soc. Protection Birds, 25 Eccleston Square, London, S.W. 1. 20 p. 1961. [From Brit. Birds 54(4), 1961.] WR 103: 9

Information from 67 bird kills presents the first conclusive proof that certain chemical seed dressings are responsible for the recent widespread deaths in birds. Chemical analysis has isolated lethal amounts of chlorine in the organs of birds found dead in areas where chlorine was used to treat seeds. The birds most often reported dead were pheasants, crows and rooks, chaffinches, partridges, green finches, and house sparrows.--Bruce Campbell.

Durasová, M. VLIV CHEMICKÝCH PŘÍPRAVKŮ NA ZVĚŘ A OSTATNÍ ŽIVOČICHY. [EFFECT OF CHEMICAL [PLANT PROTECTION] PREPARATIONS ON GAME AND OTHER ANIMALS.] Práce Výzkum. Úst. Lesn. ČSR no. 20. p. 227-263. 1960. [From Commonwealth Forestry Bur., Centralized Title Serv. Cards, 8 May 1961.] WR 103: 9

In Czech with Russian and German summaries. 221 references. An account of Czechoslovak work (supplemented by references to world literature) on the effect of insecticides, fungicides, herbicides, rodenticides and artificial fertilizers on game and other animals and birds.--Courtesy/ Frank M. Johnson.

Fedorenko, A. P. [THE DANGER OF POISONING GAME ANIMALS WITH BHC AND DDT.] Akad. Nauk Ukr. RSR Inst. Zool. Zhirnyk Prats' 29: 49-50. 1960. [Listed in Bibliog. Agr. 25(6), 1961.] WR 103: 9

In Russian.

Lange, B., and R. Sol. SPRITZUNGEN GEGEN FELDMÄUSE (MICROTUS ARVALIS PALLAS) UND IHRE AUSWIRKUNGEN AUF DIE GRÜNLANDFAUNA. [SPRAYING OPERATIONS AGAINST FIELD MICE (MICROTUS ARVALIS PALLAS) AND ITS EFFECTS ON THE FAUNA OF GREENLAND.] Nachrbl. des Deut. Pflanzenschutzdienstes 12(11): 161-167. Nov. 1960. [From Bibliog. Agr. 25(5), 1961.] WR 103: 9

Mahaffey, Juanita. (HEW, Washington 25, D. C.) POLLUTION--THE WORST POACHER. Idaho Wildl. Rev. 13(6): 10-12, 3 figs. May-June 1961. WR 103: 9

Pollution is destroying or retarding fish and wildlife in quantities approaching those maintained by the $125 million invested by hunters and fishermen. Pollution may affect fish and wildlife either directly or by making the habitat untenable. Examples of the effect of pollution and of advances in the fight against pollution are presented.

Vinogradov, A. P., and V. V. Kovalsky. THE BIOLOGICAL ROLE OF THE RADIOACTIVITY OF K^{40} IN ANIMALS. Doklady Akad. Nauk SSSR (Biol.) 113(1/6): 212-215, illus. 1957. [From Biol. Abstr. 36(14), 1961.] WR 103: 9

[From Russian.] Translated from Doklady Akad. Nauk SSSR Biol. Sci. Sect. 113(2): 315. 1957.

WILDLIFE--PARASITES & DISEASES

Bouvier, G. TRANSMISSION POSSIBLE DE LA TUBERCULOSE ET DE LA BRUCELLOSE DU GIBIER A L'HOMME ET AUX ANIMAUX DOMESTIQUES ET SAUVAGES. [TRANSMISSION OF TUBERCULOSIS AND BRUCELLOSIS FROM WILD ANIMALS TO MAN AND TO DOMESTIC AND WILD ANIMALS.] Nuova Vet. 36: 185-188. 1960. [From Vet. Bull. 31(6), 1961.] WR 103: 9

In French with summaries in English, German, Italian, and Spanish. Tuberculosis was diagnosed in chamois, roe-deer, badgers, swans, coots, cranes, partridges, and other birds. The role of these animals and birds in the spread of the disease to domestic animals is discussed. Brucellosis is frequent in hares in Switzerland and constitutes a real danger to man and to domestic and wild animals.

Laird, Marshall. A LACK OF AVIAN AND MAMMALIAN HAEMATOZOA IN THE ANTARCTIC CANADIAN ARCTIC. Canadian J. Zool. 39(2): 209-213. Apr. 1961. WR 103: 10

Abstract: Blood films were obtained from 111 animals in New Zealand's Ross Dependency, and 165 on Prince of Wales Island, N.W.T. Most of them were from birds, and all proved negative for haematozoa although not because of any lack of susceptibility. An absence of vectors precludes local transmission in the areas sampled, and while wide-ranging migratory birds nesting in the Arctic could be exposed to infection elsewhere, many of them are normally protected from this hazard by ecological barriers.

Tagil'tsev, A. A. CERTAIN COMPARATIVE ECOLOGICAL DATA ON GAMASID TICKS OCCURRING IN THE NESTS OF BIRDS AND SMALL MAMMALS IN AN ENZOOTIC FOCUS OF TICK-BORNE ENCEPHALITIS. Zhur. Mikrobiol. Epidemiol. i Immunobiol. [Transl.] 31 (5): 860-869, illus. 1960. Translated from Zhur. Mikrobiol. Epidemiol. i Immunobiol. 31(5): 69-75. 1960. [From Biol. Abstr. 36(12), 1961.] WR 103: 10

Gamasid ticks found in nests of small mammals (voles, moles) and birds (starlings) in forests and towns in natural foci of the Kemerovo Oblast' during a period of intensive circulation of tick-borne encephalitis virus between 1954 and 1956 were found to be infected with the virus. The distribution and adaptation of the ticks to nests of certain species depend on the life cycle and ecological requirements of the gamasids and the degree to which these requirements are found in the nests of the mammals and birds.

WILDLIFE--POPULATIONS & FLUCTUATIONS

Beklemishev, V. N. [SPATIAL AND FUNCTIONAL STRUCTURE OF POPULATIONS.] Bull. Moscow Obshch. Ispyt. Prirody (Biol.) 65(2): 41-50. 1960. [From Biol. Abstr. 36(13), 1961, from Referat. Zhur., Biol., 1960, no. 115006.] WR 103: 10

Translation [from Russian].

Mackintosh, N. A. THE PATTERN OF DISTRIBUTION OF THE ANTARCTIC FAUNA. Proc. Roy. Soc., Ser. B., 152(949): 624-631. 1960. [From Polar Record 10 (68), 1961.] WR 103: 10

Distribution patterns of Antarctic animals illustrated by plankton organisms, penguins, and seals.

Rajala, Paavo. RIISTANTUTKIMUSLAITOKSEN SIIPIMERKINTÄ VV 1956-58. [GAME MARKINGS BY THE GAME RESEARCH INSTITUTE 1956-58.] Suomen Riista 13: 164-175, 8 figs. 1959. WR 103: 10

In Finnish with English summary on separate mimeo. sheet. One hundred and five mammals and 2,022 birds were banded and tagged during 1956-8. A summary of the recoveries by species for the 3-year period is presented. A summary of the taggings and recoveries for a 12-year period is included.--From auth. summ.

WILDLIFE--BIOMETRICS

Eberhardt, Lee. (Mich. Dept. Conserv., Lansing 13.) ESTIMATING THE KILL OF GAME ANIMALS BY LICENSED HUNTERS. J. Am. Statistical Assoc. 56(294): 396-397. June 1961. WR 103: 10

Summaries of papers delivered at 120th meeting of the Am. Statistical Assoc., Stanford, Calif., 23-26 Aug. 1960.--V. Schultz.

Nelder, J. A. A NOTE ON SOME GROWTH PATTERNS IN A SIMPLE THEORETICAL ORGANISM. Biometrics 17(2): 220-228. June 1961. WR 103: 10

Courtesy/ V. Schultz.

Whittle, P., and H. S. Roberts. (Cambridge Univ., England.) THE COVARIANCE ANALYSIS OF TIME-REPLICATED DATA. New Zealand J. Sci. 3(4): 649-657. Dec. 1960. WR 103: 10

Summary: The analysis of covariance is discussed where the regression coefficient varies with time.

Williams, W. T. SOME APPLICATIONS OF ELECTRONIC COMPUTERS IN PLANT ECOLOGY AND TAXONOMY. Biometrics 17(2): 331. June 1961. WR 103: 11
Abstract of paper presented at the meetings of the British Region of Biometric Soc., 27 Oct., 13 Dec. 1960.--V. Schultz.

WILDLIFE--TECHNIQUES

Gysel, Leslie W. (Mich. State Univ., East Lansing.) BULLDOZING TO PRODUCE BROWSE FOR DEER. Quart. Bull. Mich. Agr. Expt. Sta. 43(4): 722-731, 4 figs. May 1961. WR 103: 11
The results of bulldozing to produce browse for deer were analyzed in five different plant communities after five growing seasons in the Manistee Natl. Forest in northern Mich. Large amounts of browse were produced in sugar maple (Acer saccharum) stands and in an area in which staghorn sumac (Rhus typhina) was a common plant. Browsing was most common on stump and seedling sprouts, intermediate on epicormic branches, and lightest on crown branches. These preferences may result from differences in chemical content.--Author.

Heath, Robert G. (Patuxent Wildl. Res. Center, Laurel, Md.) A THEORETICAL ANALYSIS OF AN AUDIO-INDEX. Mich. Dept. Conserv., Game Div. Rept. no. 2273. v + 38 p., 7 figs. 1961. WR 103: 11
A discussion is presented of: the factors that determine the magnitude of an audio-index; the derivation of a mathematical model for an audio-count; the method to measure relative differences in population densities between several areas; and the counting technique for improving the standard audio-index. Audio-counts taken according to a Latin square design, letting areas represent "treatments," and observers and mornings represent "rows" and "columns" respectively, should yield unbiased estimates of the ratios of the population densities of several areas.--From auth. summ.

Payne, Robert B. (Museum Vertebrate Zool., Berkeley, Calif.) GROWTH RATE OF THE LENS OF THE EYE OF HOUSE SPARROWS. Condor 63(4): 338-340, 1 fig. July-Aug. 1961. WR 103: 11
The dry weight of the lens of the eye has successfully been used to age mammals (cottontail, gray fox). This technique appears to be of little use in aging birds with the exception of the house sparrow (Passer domesticus), which can be aged up to 2 months.

Warner, D. W., J. R. Tester, S. L. Jacobson, J. P. Lindmeier, Richard C. Birkebak, and Roland C. Birkebak. (Minn. Museum Nat. Hist., Minneapolis.) PROGRESS REPORT NO. 2 / A STUDY OF THE MOTILE RESPONSES OF ANIMALS TO RADIATION FIELDS AND TO OTHER PHYSICAL AND BIOTIC FACTORS IN THE NATURAL ENVIRONMENT. Univ. Minn., Minn. Museum Nat. Hist. vii + 65 p., 32 figs. Apr. 1961. WR 103: 11
Includes developments on the animal tracking system, heat transfer laboratory studies, and the Carlos Avery habitat studies.

WILDLIFE--MANAGEMENT & RESEARCH, GENERAL

Dale, Fred H. RESEARCH PROBLEMS IN WILDLIFE ADMINISTRATION. J. Wildl. Mgmt. 25(3): 265-271. July 1961. WR 103: 11
A discussion of the role of administration in improving research. Topics include recognition of the complexities of modern research and the value of advanced training for the research staff, the improving of morale by assigning responsibilities consistent with training and capability, and increasing reliability by utilizing statistical assistance in planning stages and encouraging team approach. Research men should not be expected to argue in defence of controversial research results because of the danger of introducing emotional bias. The administrator should preserve the scientific reputation of his research staff at all costs, since once this is lost the staff will be of slight value.--Author.

WILDLIFE--MANAGEMENT & RESEARCH, GENERAL--Continued

Dale, Tom, editor. [SOIL CONSERVATION -- MARCH 1961.] Soil Conserv. 26 (8): 171-192. Mar. 1961. WR 103: 12

The entire issue is devoted to wildlife conservation as related to soil conservation. Includes the following articles: Wildlife conservation, by Donald A. Williams; Wildlife farming in Oregon, Henry J. Pavelek; Not worth the taxes, Allen G. Mayville; Strip mine becomes wildlife haven, Ernest Dierks; 1,500 cattle and 100,000 deer, Ellis F. Sedgley and Harold M. Boeker; Trout pond in Virginia, Wayne M. Hypes; Fish are soil survey "customers", Bernhard A. Roth; Beaver pond grows duck food, Luther E. Gowder; Hunting on the contour, John Nehoda; Range and wildlife management, Robert O. Koerner; New home for ducks, Wayne A. Ruona; Pheasants--by the hundreds, Howard V. Cheney; More quail and deer, Joe Coughran; Catfish farming, Brice M. Latham; Cottontails and bobwhites, Dalton Rushing and R. D. Fisher.

Davis, Perry Hume II. ALASKA CONSERVATION--G.I. STYLE. Alaska Sportsman 27(7): 14-17, 41-43, 8 figs. July 1961. WR 103: 12

Describes the US Army-Alaska Fish and Game Dept. cooperative conservation program. Army conservation agents are used to educate military personnel on conservation and perform actual biological field work. The army provided men and material to aid the state in obtaining 500,000 salmon eggs, and provided the helicopters which made it possible to tag 201 moose calves.

Tarczyński, Stefan. KONFERENCJA NA TEMAT PARAZYTOLOGII ŁOWIECKIEJ W PRADZE (CZECHOSŁOWACJA). [THE CONFERENCE ON THE PARASITOLOGY OF HUNTING IN PRAGUE (CZECHOSLOVAKIA).] Wiadomości Parazytol. 6(6): 552-554. 1960. [From Biol. Abstr. 36(14), 1961.] WR 103: 12

[In Polish.]

Tarczyński, Stefan. PARAZYTOLOGIA ŁOWIECKA W CZECHOSŁOWACJI, JEJ ROZWÓJ I ORGANIZACJA. [THE PARASITOLOGY OF HUNTING IN CZECHOSLOVAKIA, ITS EVOLUTION AND ORGANIZATION.] Wiadomości Parazytol. 6(6): 547-552. 1960. [From Biol. Abstr. 36(14), 1961.] WR 103: 12

[In Polish.]

WILDLIFE--HUNTING AREAS & PROBLEMS

Merck, George W. A LOOK AT WILDLIFE IN SUDAN. Animal Kingdom 64(3): 82-88, 5 figs. May-June 1961. WR 103: 12

Various factors influencing the future of wildlife in Sudan are: the variety of habitat provides a niche for a great many species and, with a few exceptions, there is enough space available to insure against extermination if conservation is wisely practiced; much of the land is not suited to agriculture; and there is room for national parks and reserves. The effect of fire, poaching and hunting regulations are briefly covered.

U. S. Fish & Wildlife Service. BETTER HUNTING AND FISHING ON SMALL WATERSHED PROJECTS. US F&WS Circ. 100. 12 p., illus. 1960. (For sale by Supt. Documents, U. S. Govt. Printing Office, Washington 25, D. C. at 10¢.) WR 103: 12

WILDLIFE--PREDATION, CROP DAMAGE, CONTROL

Abbott, Jackson Miles. 814 13th St., Alexandria, Va.) THE EFFECT OF OWL PREDATION ON RODENT POPULATIONS. Va. Wildl. 22(7): 10-11, 2 figs. July 1961. WR 103: 12

A rodent population eruption was experienced at the Dulles International Airport in Fairfax County, Va. This eruption attracted a great number of winged predators to the area. The effect of the predators on the rodent population is discussed. A total of 88 pellets showed the following prey species frequency: mice -- 93.8%; birds -- 4.2%; insects and others -- 2%.

Dinesman, L. G. [THE DAMAGE CAUSED BY MAMMALS AND BIRDS, AND PROTECTING TREES AND SHRUBS FROM THEM.] Soobšč. Inst. Les. no. 8: 33-43. 1957. [From Commonwealth Forestry Bur., Centralized Title Serv. Cards, 20 Mar. 1961.] WR 103: 13

In Russian.--Courtesy/ Frank M. Johnson.

Eadie, Robert W. (Cornell Univ., Ithaca, N. Y.) CONTROL OF WILDLIFE DAMAGE IN ORCHARDS. N. Y. State Coll. Agr., Cornell Extension Bull. 1055. 16 p., 2 figs. 1961. WR 103: 13

Every year in N. Y. State a varying degree of damage to orchards is caused by meadow mice, pine mice, rabbits, and deer. Several methods are presented to reduce the damage caused by these animals.

Lawrence, William H. (Weyerhaeuser For. Res. Center, Centralia, Wash.) EVALUATION OF BONE TAR OIL AS A DEER REPELLENT FOR DOUGLAS-FIR SEEDLINGS. Weyerhaeuser Co., For. Res. Note no. 32. 5 p. Dec. 1960. WR 103: 13

Single application of a formulation including 1% bone tar and 10% rhoplex (AC-33) failed to provide significant protection to 2-0 Douglas-fir seedlings planted in a deer problem area in Oreg. Bone tar oil is not recommended as a deer repellent for Douglas-fir seedlings based on the results of the Mar.-Oct. 1958 test.--From summ.

Smelser, Marguerite Angelo. PREDATOR CONTROL AN UNSAVORY MESS. Natl. Wildlands News 2(3): 3-4, 1 fig. Mar. 1961. WR 103: 13

Sharp criticism of the predator control program of the United States. The author believes that this program is unnecessary, expensive, and that thousands of useful animals are destroyed annually.

WILDLIFE--REPORTS OF ORGANIZATIONS & REPORTS OF HARVESTS

Barnes, Wm. B. (Ind. Dept. Conserv., Indianapolis 9.) WILDLIFE HARVEST ON STATE-OWNED FISH AND GAME AREAS. Outdoor Indiana 4(11): 14-15, 1 fig. May 1961. WR 103: 13

A report on the first year's hunting success on 9 state-owned and operated areas.

Cape of Good Hope. DEPARTMENT OF NATURE CONSERVATION / REPORT NO. 16 / 1959. Provincial Admin., Cape of Good Hope, Dept. Nature Conserv., Cape Town, S. Africa. 133 p., illus. [1960.] WR 103: 13

An attractive account is presented of the methods of wildlife management, research, education, law enforcement, conservation, and the national parks, museum, and zoological gardens of the U.S. The methods used in the U.S. that can be applied to the Cape of Good Hope region are discussed. The problem of predator control is presented and here again the methods practiced in the U.S. are discussed and several of the techniques are suggested for use by the Dept. of Nature Conservation. There are special reports on the Jonkershoek Waterfowl Refuge, the de Hoop Wildlife Farm, the spread of the house sparrow, the birds of the de Hoop Nature Reserve, and the nature resources in Cape Province.

FIFTIETH CONVENTION OF THE INTERNATIONAL ASSOCIATION OF GAME, FISH AND CONSERVATION COMMISSIONERS--SEPTEMBER 15-16, 1960--DENVER, COLORADO. 192 p. [1961.] $2.00 from V. E. Joslin, 16413 Canterbury Drive, Hopkins, Minn. WR 103: 13

Papers and committee reports which cover the wildlife field by summarizing current developments and future land use problems. The place of wildlife and recreation in the use of public lands, both current and future, is the major problem discussed.

Nyasaland Protectorate. ANNUAL REPORT OF THE DEPARTMENT OF GAME, FISH AND TSETSE CONTROL FOR THE YEAR ENDED 31ST DECEMBER 1960. Govt. Printer (Zomba, Nyasaland). 26 p. 1961. WR 103: 13

Developments of the Game Section are summarized on pages 1-4. Tables are presented showing the average numbers of 24 big game species seen per 10 patrol days for 6 localities in each quarter of the year.

WETLANDS & WILDLIFE

Emerson, Frederick B., Jr. SOME ASPECTS OF THE ECOLOGY AND MANAGEMENT OF WILDLIFE MARSHES IN NEW YORK STATE. N. Y. Conserv. Dept., P-R Project W-88-R-5. vii + 115 p. Mar. 1961. WR 103: 14

During the period 1955-60, there were 123 introductions of 10 species of aquatic plants in 32 wildlife marshes in south-central New York. Seventeen were rated as "good", 9 "fair", 16 "poor", and 81 were completely unsuccessful. Four emergent species, selected on the basis of their known or potential value as waterfowl food and cover, were given major emphasis in the propagation studies: Zizania aquatica, Scirpus acutus, Scirpus americanus, and Butomus umbellatus. Excessive slope, deep water, and hard impervious bottoms constitute the major physical factors limiting to plant growth and distribution in the wildlife marshes. Marshes created on depauperate soils in hilly, wooded terrain can be expected to be failures or, at best, second rate unless 75% of the acreage of the marsh is flooded by water 18 inches or less in depth. This will bring about optimum vegetative growth.--From auth. summ.

Grizzell, Roy A., Jr. (403 W. Ponce de Leon Ave., Decatur, Ga.) WATER IMPOUNDMENTS--THEIR DESIGN AND MANAGEMENT FOR FISH, WILDLIFE AND RECREATIONAL USES. 25th Ann. Meeting Am. Soc. Agr. Eng., Ga. Sec. 8 p. 10-11 Nov. 1960. WR 103: 14

Agricultural water impoundments provide essential habitat for fish, shrimp, crayfish, waterfowl, and other species of aquatic wildlife. The proper design of the dam is the key to many techniques involving water management. The techniques include the following: deepening the shorelines of fish ponds; designing the proper spillway; creating diversions and terrace systems; using draw down slots or gates; and taking the overflow from bottom waters.

Harney, John E. (US F&WS, Concord, N. H.) WETLANDS PRESERVATION ON LONG ISLAND. Conservationist (N. Y.) 15(4): 12-14, 3 figs. Feb.-Mar. 1961. WR 103: 14

Deals with the economic and esthetic importance of wetlands. Discusses the reasons why the wetlands are being drained or otherwise being made unsuitable for wildlife. Summarizes some of the progress in the work which is being done to halt this destruction.

FARMLAND & WILDLIFE

Harper, Hugh. TREE AND SHRUB PLANTINGS FOR WILDLIFE HABITAT IMPROVEMENT. Idaho Wildl. Rev. 13(5): 6-9, 4 figs. Mar.-Apr. 1961. WR 103: 14

A habitat improvement program designed to increase wildlife populations in Idaho was initiated in 1952. The results are summarized in a table.

Leadbetter, Everett R. OLIVES FOR THE BIRDS. W. Va. Conserv. 25(3): 6-7, 3 figs. May 1961. WR 103: 14

Autumn olive has been found to be highly successful for the rapid stabilization of strip mine spoil exposures. Autumn olive produces yields of 20-30 pounds of fruit per mature tree. Quail, ruffed grouse, pheasants, and various song birds use it for food. It provides the maximum of edge with contrasting, food-producing wildlife cover.

Toschi, A. [HUNTING AND AGRICULTURE.] Prog. Agr. (Bologna) 6(12): 1395-1398. Dec. 1960. [From Bibliog. Agr. 25(6), 1961.] WR 103: 14

In Italian.

FORESTLAND--MANAGEMENT FOR & DAMAGE BY WILDLIFE

Fozzer, F. [THE FUNCTION OF STATE FORESTS IN REGARD TO PROTECTION AND INCREASE OF GAME.] Monti e Boschi 12(1): 19-26. Jan. 1961. [From Bibliog. Agr. 25(6), 1961.] WR 103: 14

In Italian with English summary.

Kimball, James W. (Div. Game & Fish, Minn. Dept. Conserv., St. Paul 1.) LAND WILL PRODUCE WOOD AND WILDLIFE. Conserv. Volunteer 24(140): 28-31, 1 fig. Mar.-Apr. 1961. WR 103: 15

Stresses the need for multiple use of forests so that each acre will be as productive as possible. Multiple use can be divided into three broad categories as follows: (1) both objectives (forests and wildlife) benefit; (2) at a small sacrifice of one objective, the other is greatly benefited; (3) the loss to one objective will offset gains to the other.

Lawrence, William H., Nelson B. Kverno, and Harry D. Hartwell. (Weyerhaeuser Co., Centralia, Wash.) GUIDE TO WILDLIFE FEEDING INJURIES ON CONIFERS IN THE PACIFIC NORTHWEST. Western Forestry & Conserv. Assoc. iii + 44 p., 18 figs. June 1961. Distributed by Western Forestry and Conserv. Assoc., 712 U. S. Natl. Bank Bldg., Portland 4, Oreg. Price $1.50. WR 103: 15

A guide prepared to aid the forester in field identification of wildlife-caused injuries. To aid identification, wildlife-caused injuries are grouped according to the stage in tree development on which they occur: (1) cone and seed losses, (2) seedling and sapling injuries, (3) mature tree injuries. Pages with descriptive keys for identification of recent injuries separate the 3 sections. Brief descriptions and diagnostic photos illustrate typical injuries produced by 12 animals (or closely allied groups of animals) which are pictured by pen sketches. Pertinent facts on range, habits, and other distinctive field signs left by these animals are included.

Neves, C. M. B. [IN DEFENSE OF SOME INTERESTS AND RIGHTS IN FOREST EDUCATION.] Agros. (Lisbon) 43(4): 269-275. July-Aug. 1960. [From Bibliog. Agr. 25(5), 1961.] WR 103: 15

In Portuguese with English summary. "Importance of wildlife relations."

Pall, E. [WINTER FEEDING OF WILDLIFE WITH SILAGE.] Erdogazdasag és Faipar 12: 15-16. Dec. 1960. [From Bibliog. Agr. 25(5), 1961.] WR 103: 15

"In Hungarian. For control of wildlife damages in forests."

STRIPPED LAND & MISCELLANEOUS HABITATS

Riley, Charles V. (Kent State Univ., Kent, Ohio.) THE ECOLOGY OF WATER AREAS ASSOCIATED WITH COAL STRIP MINES IN OHIO. Ohio J. Sci. 60(2): 106-121, 1 fig. Mar. 1960. WR 103: 15

In 1956 Ohio had approximately 124,115 acres of land which had been affected by open-pit coal mining. Fifteen spp. of waterfowl and 8 spp. of shorebirds were observed either on the strip mine lakes or along the shore areas. Mallard, wood duck, and blue-winged teal were observed nesting on or near strip mine ponds. Four mammals, all fur-bearers of importance, were inhabiting the marsh and pond areas. Five spp. of salientia were found. The snapping turtle, painted turtle, and common water snake were identified as inhabitants of these aquatic habitats.--From auth. summ.

CONTROL OF VEGETATION WITH HERBICIDES ETC.

Arend, John L., and Eugene I. Roe. (East Lansing Res. Center, East Lansing, Mich.) RELEASING CONIFERS IN THE LAKE STATES WITH CHEMICALS. USDA, Agr. Handbook no. 185. 22 p., 10 figs. Jan. 1961. Available from Supt. Documents at 15¢ per copy. WR 103: 15

Provides information on chemical herbicides used and their effectiveness, methods of application, and treatment costs.

Burton, Glenn W., and Ralph H. Hughes. (Univ. Ga., Athens.) EFFECTS OF BURNING AND 2,4,5-T ON GALLBERRY AND SAW-PALMETTO. J. Forestry 59(7): 497-500, 1 fig. July 1961. WR 103: 15

The best control of both gallberry and saw-palmetto was obtained by burning in Mar. and spraying in late Aug. with 2,4,5-T in water. This treatment killed 84% of the gallberry stems and reduced the foliage cover 75-85%. This reduction in competition allowed for the yield of forage grasses to increase threefold.

Rate of 2,4,5-T applied had no effect upon control of either species. When 2,4,5-T was applied in Nov., oil was a much more effective carrier for the herbicide than water. Water and oil were equally effective as carriers when the herbicide was applied in May.--From auth. summ.

Cable, Dwight R., and Fred H. Tschirley. (Rocky Mountain Forest & Range Expt. Sta., Fort Collins, Colo.) RESPONSES OF NATIVE AND INTRODUCED GRASSES FOLLOWING AERIAL SPRAYING OF VELVET MESQUITE IN SOUTHERN ARIZONA. J. Range Mgmt. 14(3): 155-158, 2 figs. May 1961. WR 103: 16

Herbage production of native perennial grass and Lehmann lovegrass is compared on sprayed and unsprayed portions of a velvet mesquite infested pasture. Five growing seasons after the final spraying, the mortality and defoliation of mesquite were determined. Spraying the area twice with 0.75 pound of 2,4,5-T was found to be the most effective treatment. Herbage production of perennial grasses was found to have increased six times. Herbage production of lovegrass increased three times. These higher productions more than paid the cost of spraying and seeding.--From auth. summ.

Dahms, Walter G. CHEMICAL CONTROL OF BRUSH IN PONDEROSA PINE FORESTS OF CENTRAL OREGON. Pacific NW Forest & Range Expt. Sta., USDI Res. Paper 39. i + 17 p., 9 figs. Mar. 1961. WR 103: 16

Foliage sprays of 2,4-D and 2,4,5-T were found to be highly and equally effective on manzanita when applied during the period from early May to early July. Tests on chinkapin showed that 2,4,5-T was the most effective chemical, that an emulsion carrier was definitely superior to a water carrier, and that mid-June treatments produced a better kill of aerial parts than late Sept. applications. Aerial parts of snowbrush can be killed with 2,4,5-T at the rate of 1 pound per acre in an emulsion carrier or 1.5 pounds per acre in a water carrier.

Leonard, O. A., and C. E. Carlson. (Univ. Calif., Davis.) KILL OF BLUE OAK AND POISON OAK BY AIRCRAFT SPRAYING WITH PHENOXY HERBICIDES. Weeds 8(4): 625-630. 1960. [From Biol. Abstr. 36(11), 1961.] WR 103: 16

Blue oak (Quercus douglasii) is a common tree on several million acres of grazing land in California. Poison oak (Rhus diversiloba) is commonly associated with it. The most effective treatment was with an ester of silvex applied once a year for 3 years. The next most effective herbicide applied for 3 consecutive years was 2,4,5-T (2,4,5-trichlorophenoxyacetic acid) and the least effective one was 2,4-D (2,4-dichlorophenoxyacetic acid). All of the more effective treatments involved applications in May.--J. van Overbeek.

McCaleb, J. E., E. M. Hodges, and C. L. Dantzman. (Range Cattle Expt. Sta., Ona, Fla.) EFFECT OF HERBICIDAL CONTROL OF SAW PALMETTO ON ASSOCIATED NATIVE FORAGE PLANTS IN PENINSULAR FLORIDA. J. Range Mgmt. 14(3): 126-130. May 1961. WR 103: 16

Five herbicides were applied in Sept. and Oct. 1957. In May 1959, the treated areas were studied to determine the effect of each herbicide on species composition and ground cover density of native forage plants growing in association with saw palmetto. Per cent of buds killed is given for each of the 5 treatments. In 4 out of 5 treatments, the palmetto kill decreased when larger amounts of oil were added. Woody plants were fewer in all areas studied. Shrubs increased in per cent species composition as greater amounts of oil were added.--From auth. summ.

Montgomery, Alex. CONTROL OF AQUATIC WEEDS IN FARM PONDS. J. Soil & Water Conserv. 16(2): 69-70, 2 figs. Mar.-Apr. 1961. WR 103: 16

Application of chemicals is the most efficient method for controlling aquatic weeds. The methods for controlling submerged plants, emergent plants, and algal infestations are discussed. Spring or early summer is the best time to apply the chemicals for best results.

MAMMALS--GENERAL

Dawe, Albert R. NATURAL MAMMALIAN HIBERNATION. Naval Res. Reviews (Washington). p. 12-15. Aug. 1960. [From J. Mammal. 42(2), 1961.] WR 103: 17

Folk, G. Edgar, Jr., Christopher H. Dodge, and Mary A. Folk. RESTING BODY TEMPERATURES OF RACCOONS AND DOMESTIC RABBITS. Proc. Animal Care Panel 7(4): 253-258. 1957. [From Biol. Abstr. 36(10), 1961.] WR 103: 17

The body temperature of two wild-caught adult raccoons ranged from 99.4° F to 101.8° F (mean 100.7° F or 38.2° C). The resting temperature was 100.5° F. There was no apparent affect upon body temperature of exposure to cold for 3 days. The night temperature of each raccoon was usually one degree lower than the highest day temperature. Three control rabbits showed a mean body temperature about 2.5° F higher than the raccoons. All rabbits showed a cycle of temperature which was the reverse of the raccoons, since it dropped in the daytime and rose at night. Application of these results to defining the term semi-hibernation is discussed.--Authors.

Halloran, Arthur F. (Wichita Mountains Wildl. Refuge, Cache, Okla.) THE CARNIVORES AND UNGULATES OF THE ARANSAS NATIONAL WILDLIFE REFUGE, TEXAS. Southwestern Nat. 6(1): 21-26. 10 June 1961. WR 103: 17

Abstract: A brief history and status of the carnivores and ungulates of the Aransas National Wildlife Refuge, Texas is presented. Coyotes, raccoons, striped skunks, bobcats, feral hogs, javelinas, and white-tailed deer are common to abundant. Red wolves and gray fox are uncommon. Ringtailed cat, badgers, and spotted skunks are rare. Introduced fallow deer have been eliminated and introduced mule deer never became established.

Longhurst, W. M. BIG-GAME AND RODENT RELATIONSHIPS TO FORESTS AND GRASSLANDS IN NORTH AMERICA. Intern. Union Conserv. Nat. & Nat. Resources Tech. Meeting 8(7). 16 p. 1960. [From Bibliog. Agr. 25(5), 1961.] WR 103: 17

Marvin, M. Ia. [CHANGES IN THE HABITATS OF MAMMALS AS THE RESULT OF HUMAN ACTIVITY.] Dokl. Sov. Obshch. Vopr. Biol., Posviashch. Stoletiiu Darvinizma (Tomsk) 1959: 280-282. 1959. [From Biol. Abstr. 36(15), 1961, from Referat. Zhur., Biol., 1961, no. 1D666.] WR 103: 17

Translation [from Russian]. Review of history of extermination of river beaver and reindeer and extension of habitats of hare, field mouse, common field vole, and other animals in the various regions of the USSR.

van Wijngaarden, A. DE ZOOGDIEREN VAN NOORD-BEVELAND. [THE MAMMALS OF THE ISLAND NOORD-BEVELAND.] De Levende Natuur 62: 211-215, 237-239, 3 figs. 1959. WR 103: 17

In Dutch with English summary. Notes on 21 spp. found. The northern vole Microtus ratticeps was most numerous and was found in many habitats. It is threatened by the changes effected after the completion of dikes in 1960-1, and will probably be replaced by Microtus arvalis.

MAMMALS--POPULATIONS, HOME RANGES, COMMUNITIES

Kaye, S. V. (N. C. State Coll., Raleigh.) GOLD-198 WIRES USED TO STUDY MOVEMENTS OF SMALL MAMMALS. Science 131(3403): 824. 18 Mar. 1960. WR 103: 17

Eastern harvest mice, Reithrodontomys humulis humulis, were tagged with subcutaneously inserted 20 gauge gold-198 wires 10 mm long and varying in activity from 0.7 to 4.5 mc. None of the tags inserted by this method were lost or had any apparent effect on the animals. The movements of the tagged mice were successfully traced with a portable Geiger counter.--From auth. abstr.

Pimentel, David. (Cornell Univ., Ithaca, N. Y.) ANIMAL POPULATION REGULATION BY THE GENETIC FEED-BACK MECHANISM. Am. Nat. 95(881): 65-79, 3 figs. Mar.-Apr. 1961. WR 103: 17

The genetic feed-back mechanism functions through the dynamics of density pressure, selective pressure, and genetic changes in interacting populations. In a herbivore-plant system, animal density influences selective pressure on plants; this selection influences the genetic make-up of the plant; and in turn, the genetic make-up of the plant influences animal density. The actions and reactions of interacting populations in the food chain, cycling in the genetic feed-back mechanism, result in the evolution and regulation of animal populations.--From auth. summ.

MAMMALS--PARASITES AND DISEASES

Ferris, D. H., L. E. Hanson, J. O. Albert, J. C. Calhoun, and Rachel Marlowe. (Univ. Ill., Urbana.) CORRELATIVE SEROLOGIC STUDIES ON BRUCELLOSIS AND LEPTOSPIROSIS IN CATTLE AND DEER IN ILLINOIS. Am. J. Public Health 51(5): 717-722, 2 figs. May 1961. WR 103: 18

Leptospirosis in deer is widespread throughout Ill. and other states. In this study 419 samples of deer blood were taken in 1957 during the first deer hunting season in Ill. since 1901. Of these 243 were tested for Brucella and Leptospira infection. Nine of the 13 counties from which samples were taken had positives to one or more Leptospira serotypes; 10.2% of the samples were positive to L. pomona and 9.8% were positive to L. grippotyphosa.--From summ.

Hyland, Kerwin E., and John A. Mathewson. (Dept. Zool., Univ. R. I., Kingston.) THE ECTOPARASITES OF RHODE ISLAND MAMMALS. I. THE IXODID TICK FAUNA. Wildl. Disease no. 11. 14 p. 26 June 1961. WR 103: 18

[Numbers 11 and 12 on one microcard.] An annotated list of ixodid ticks collected in Rhode Island during the period 1955 to 1957 is presented. Collection data are reported with respect to host, locality, month, life-history, stages, and sex. The following ixodids were found on non-domestic mammals: Dermacentor albipictus, D. variabilis, Haemaphysalis leporispalustris, Ixodes angustus, I. cookei, I. dentatus, I. marxi, I. muris, and I. scapularis. An additional species, Rhipicephalus sanguineus, occurs throughout the state, but was not recovered on wild mammals.--From abstr.

Igolkin, N. I., T. A. Vershinina, and Iu. V. Fedorov. [THE ROLE OF THE GAMASOIDEA IN THE EPIZOOTOLOGY OF TICK ENCEPHALITIS.] Med. Parazitol. i Parazitar. Bolezni [Moscow] 28(5): 568-571. 1959. [From Biol. Abstr. 36(12), 1961.] WR 103: 18

In Russian [with English summary]. No virus was detected in 5412 specimens of Gamasoidea collected from the nests of small mammals in a focus of tick encephalitis.--From Referat. Zhur., Biol., (Transl.), 1960, No. 105887.

Marchette, Nyven J., and others. STUDIES ON INFECTIOUS DISEASES IN WILD ANIMALS IN UTAH. I. SUSCEPTIBILITY OF WILD MAMMALS TO EXPERIMENTAL TULAREMIA. Zoonoses Res. 1(3): 49-73. 20 Feb. 1961. WR 103: 18

Tularemia in the Great Salt Lake Desert Region of Utah is primarily a disease of jack rabbits and is maintained in these animals and their ticks. Rodents may be incidentally infected but the generally rapid course and fatal results of this disease would make it self-limiting and short-lived except where very dense populations could conceivably support an epizootic for a short period. Carnivores, because of their resistance to infection, probably play no role in the maintenance or spread of tularemia in this area.

Parnas, Józef, Kazimierz Lazuga, Tadeusz Dabrowski, and Adolf Kóslak. (State Inst. Rural Occupational Med. & Rural Hygiene, Lublin, Poland.) STRAINS OF LEPTOSPIRAE EVOKING SWAMP FEVER IN SOUTHEASTERN POLAND: A FOUR-YEAR SURVEY. J. Infect. Diseases 108(3): 243-246. May-June 1961. WR 103: 18

"The principal leptospira vectors among the small mammals in the Tomaszów-Lubelski district were: Mus musculus, Microtus arvalis, Arvicola terrestris, Microtus ratticeps, Erinaceous roumanicus and Sorex araneus."--From summ.

SHREWS, MOLES, BATS

Bezem, J. J., J. W. Sluiter, and P. F. van Heerdt. POPULATION STATISTICS OF FIVE SPECIES OF THE BAT GENUS MYOTIS AND ONE OF THE GENUS RHINOLOPHUS, HIBERNATING IN THE CAVES OF S. LIMBURG. Arch. Neerlandaises Zool. 13(4): 511-539. 1960. [From J. Mammal. 42(2), 1961.] WR 103: 18

Cockrum, E. Lendell. DISTRIBUTION, HABITAT AND HABITS OF THE MASTIFF BAT, EUMOPS PEROTIS, IN NORTH AMERICA. J. Ariz. Acad. Sci. 1(3): 79-84. July 1960. [From J. Mammal. 42(2), 1961.] WR 103: 18

Hall, John Sylvester. A LIFE HISTORY AND TAXONOMIC STUDY OF THE INDIANA BAT, (MYOTIS SODALIS). Ph.D. thesis, Univ. Ill. 135 p. 1960. [From Dissertation Abstr. 21(10), 1961.] WR 103: 19

A study of the distribution, migrational, and movement patterns of the Indiana bat. Adaptations for true cave life include: (1) clustering habits in adaptation for a very specific temperature of hibernation; (2) strongly recurved claws for hanging onto the flat ceilings of caves; and (3) the ability to maintain daily summer activity in these cold caves.

Herreid, Clyde F. II. (Pa. State Univ., University Park.) NOTES ON THE PALLID BAT IN TEXAS. Southwestern Nat. 6(1): 13-20. 10 June 1961. WR 103: 19

Abstract: A colony of pallid bats studied in the summer of 1959 consisted of young bats and adult females. Data on sex ratios, body and organ weights, identified insect remains beneath Antrozous roosts and two ectoparasitic mites are reported.

Menaker, Michael. (Harvard Univ., Cambridge, Mass.) SUMMER-WINTER DIFFERENCES IN THE CIRCADIAN RHYTHMS AND THE AROUSABILITY OF BATS AT LOW BODY TEMPERATURES. Anat. Record 137(3): 381. 1960. [From Biol. Abstr. 36(11), 1961.] WR 103: 19

Abstract.

Oswald, V. H. (Ohio State Univ., Columbus.) HELMINTH PARASITES OF THE SHORT-TAILED SHREW IN CENTRAL OHIO. Ohio J. Sci. 58(6): 325-334. 1958. [From Helminthol. Abstr. 30(2), 1961.] WR 103: 19

Twente, John W. (Univ. Utah, Salt Lake City.) ENVIRONMENTAL PROBLEMS INVOLVING THE HIBERNATION OF BATS IN MOUNTAINOUS AREAS OF CENTRAL AND NORTHERN UTAH. Anat. Record 137(3): 398-399. 1960. [From Biol. Abstr. 36(11), 1961.] WR 103: 19

Abstract.

Verts, B. J., and Thomas R. B. Barr. (Ill. Nat. Hist. Survey, Urbana.) AN EFFORT TO IDENTIFY RABIES IN BATS FROM NORTHWESTERN ILLINOIS. Cornell Vet. 51(3): 384-388. July 1961. WR 103: 19

Based on studies of brain and salivary gland tissues from 559 Ill. bats of 4 spp. (Myotis lucifugus, Eptesicus fuscus, Pipistrellus subflavus, and Lasiurus borealis). The results of all tests were negative; rabies virus was not demonstrated in any of the tissues.

RABBITS AND PIKAS

Burgdorfer, Willy, Verne F. Newhouse, and Leo A. Thomas. (Rocky Mountain Lab., Hamilton, Mont.) ISOLATION OF CALIFORNIA ENCEPHALITIS VIRUS FROM THE BLOOD OF A SNOWSHOE HARE (LEPUS AMERICANUS) IN WESTERN MONTANA. Am. J. Hyg. 73(3): 344-349. May 1961. WR 103: 19

A viral agent identified as Calif. encephalitis virus was isolated from the blood of a snowshoe hare. This strain is believed to be the first direct isolation from a naturally infected vertebrate.

Haas, Glenn E., and Robert J. Dicke. (Univ. Puerto Rico, San Juan.) FLEAS COLLECTED FROM COTTONTAIL RABBITS IN WISCONSIN. Wis. Acad. Sci., Arts and Letters 48: 125-133, 3 figs. 1959. WR 103: 19

Notes are given on the morphology and bionomics of Cediopsylla simplex and on the bionomics of Odontopsyllus multispinosus--both found on the cottontail in Wis. Nine spp. of fleas which commonly infest other mammals were also collected from the cottontails.

Hewson, Raymond. (Keith, Banffshire, Scotland.) COLLARS FOR MARKING MOUNTAIN HARES. J. Wildl. Mgmt. 25(3): 329-331, 1 fig. July 1961. WR 103: 19

Patent leather collars for marking mountain hares Lepus timidus scoticus proved valuable in detecting, at ranges up to 600 yards, hares marked additionally with other, individual, markers. Use of collars of different colors for each sex and marking place provides information on movements and behavior without individual identification. During 35 months at least 20% of collars were lost.--Author.

Lønø, Odd. TRANSPLANTATION OF HARES TO SVALBARD. Meddel. Norsk Polarinstituut 84: 26-29. 1960. [From J. Mammal. 42(2), 1961.] WR 103: 20

Rementsova, M. M., and A. V. Levit. [BRUCELLOSIS IN TIBETAN HARES IN KAZAKHSTAN.] Trudy Inst. Zool. Akad. Nauk Kazakh. SSR 12: 57-63. 1960. [From Vet. Bull. 31(6), 1961.] WR 103: 20
In Russian.

Shirai, Akira, and others. (Walter Reed Army Inst. Res., Washington, D. C.) ECOLOGY OF ROCKY MOUNTAIN SPOTTED FEVER. I. RICKETTSIA RICKETTSII RECOVERED FROM A COTTONTAIL RABBIT FROM VIRGINIA. Proc. Soc. Exptl. Biol. Med. 107(1): 211-214, 1 fig. May 1961. WR 103: 20
Summary: From a naturally infected wild cottontail rabbit, S. floridanus, trapped in Virginia, an organism identified as R. rickettsii has been recovered and characterized. The role of cottontail rabbits and certain other wild native mammals in the ecology of Rocky Mountain spotted fever is discussed briefly in the light of this and other related findings.

Walters, J., and J. Soos. THE RELATIVE EFFICIENCY OF THREE HARE-REPELLENTS IN PROTECTING DOUGLAS-FIR SEEDLINGS. Forestry Chronicle 37(1): 22-28. 1961. [From Biol. Abstr. 36(14), 1961.] WR 103: 20
Following extensive damage by varying hares to Douglas fir plantations on the University of British Columbia Research Forest, Haney, B. C., 3 repellents were tested. The nature of the damage and the relative efficiency of the repellents are described.--G. R. Hopping.

Woronecki, Paul P. EVALUATION OF SOME COTTONTAIL RABBIT MANAGEMENT PROCEDURES AS APPLIED IN PIEDMONT VIRGINIA. M.S. thesis, Va. Poly. Inst. 113 p. 1961. WR 103: 20
Continuing roadside counts of rabbits indicated a decline in the population which was reflected in a decreased harvest. Pellet durability was tested under varying environmental conditions and different population formulas were applied to trap-retrap data collected from a static, small, penned rabbit population. --Burd S. McGinnes.

Woronecki, Paul P. RABBIT PELLET DURABILITY. Va. Acad. Sci. Meeting, Lexington, 12 May 1961. Mimeo., Va. Coop. Wildl. Res. Unit Release no. 61-2. 1961. WR 103: 20

RODENTS--MISCELLANEOUS

Balph, David F. (Utah State Univ., Logan.) SOME ASPECTS OF AGONISTIC BEHAVIOR SEEN IN INITIAL ENCOUNTERS BETWEEN PAIRS OF DEER MICE (PEROMYSCUS MANICULATUS RUFINUS). Anat. Record 137(3): 336. 1960. [From Biol. Abstr. 36 (11), 1961.] WR 103: 20
Abstract.

Balph, D. F., and A. W. Stokes. (Utah State Univ., Logan.) NOTES ON THE BEHAVIOR OF DEER MICE. (PEROMYSCUS MANICULATUS RUFINUS). Proc. Utah Acad. Sci. Arts & Letters 37: 55-62, illus. 1959 (1960). [From Biol. Abstr. 36(14), 1961.] WR 103: 20
Each of 5 ♂ and 2 ♀ deer mice was observed with every other mouse in an observation pen for a 30-minute period; a total of 21 observation periods. A straight-line dominance order existed among the mice. Results of encounters fell into two categories of agonistic behavior: ♀ nest defense against a ♂ of high rank and all other encounters. Males of high rank that encountered a ♀ in her nest elicited nest defense by the ♀ and a rather complex display by the ♂. All other encounters usually resulted in varying degrees of attack and escape.--Authors.

Brown, Robert Z. (Colo. Coll., Colorado Springs.) BIOLOGICAL FACTORS IN DOMESTIC RODENT CONTROL. Public Health Serv. Publ. no. 773, Rodent Control Ser.: Part II. 32 p., 20 figs. 1960. Available from Supt. Documents, Washington 25, D. C. 25¢. WR 103: 21

The most nearly permanent rodent control is obtained when man can so change the physical environment that the level of predation and competition is increased. Included is information on rodent identification, habits, and population regulating factors.

De Coursey, Patricia J. (Univ. Wis., Madison.) DAILY LIGHT SENSITIVITY RHYTHM IN A RODENT. Science 131(3392): 33-35, 1 fig. 1 Jan. 1960. WR 103: 21

Abstract: Single 10-minute light periods can cause a phase shift in the rhythm of the daily locomotor activity of flying squirrels otherwise maintained in constant darkness. A daily rhythm of sensitivity to these standard light periods was found.

Frandsen, John C., and Albert W. Grundmann. (Univ. Utah, Salt Lake City.) THE HISTORY OF SOME SUBSPECIES OF POCKET GOPHERS AS TOLD BY THEIR MONOXENOUS NEMATODES. Proc. Utah Acad. Sci. Arts & Letters 37: 154-155. 1959 (1960). [From Biol. Abstr. 36(13), 1961.] WR 103: 21

Abstract.

Gabbutt, Peter D. (McGill Univ., Montreal, Canada.) THE DISTRIBUTION OF SOME SMALL MAMMALS AND THEIR ASSOCIATED FLEAS FROM CENTRAL LABRADOR. Ecology 42(3): 518-525, 23 figs. July 1961. WR 103: 21

Habitat preferences are shown for 4 species of small mammals (Microtus pennsylvanicus, Clethrionomys gapperi, Phenacomys ungava, and Dicrostonyx hudsonius) ranging from muskeg through lichen-woodland and semi-tundra to tundra. Both host and habitat preferences are shown by 4 species of fleas (Epitedia wenmanni, Malaraeus penicilliger athabascae, Megabothris asio, and M. quirini).--From auth. summ.

Gashwiler, Jay S. (Oreg. State Coll., Corvallis.) LONGEVITY OF A WILD DEER MOUSE. Murrelet 41(2): 27. May-Aug. 1960. WR 103: 21

Capture and release data on a ♂ Peromyscus maniculatus rubidus show that the animal was about 32 months old when last captured. Animal was in good health and presumably in breeding condition when released.

Getz, Lowell L. (Univ. Mich., Ann Arbor.) NOTES ON THE LOCAL DISTRIBUTION OF PEROMYSCUS LEUCOPUS AND ZAPUS HUDSONIUS. Am. Midl. Nat. 65(2): 486-500, 7 figs. Apr. 1961. WR 103: 21

The factors influencing the local distribution of Peromyscus leucopus and Zapus hudsonius were studied in 7 habitats (old field, hardwood swamp, coniferous swamp, bog mat, spruce burn, upland hardwood, and grass sedge marsh) in s. Mich. The environmental factors considered were vegetation type, cover, temperature, food, moisture, and interspecific competition. P. leucopus permanently inhabited only wooded habitats. Z. hudsonius was found only in moist situations, and was slightly more abundant where there was standing water.--From auth. abstr.

Griffo, James V., Jr. (Patuxent Wildl. Res. Center, Laurel, Md.) A STUDY OF HOMING IN THE COTTON MOUSE, PEROMYSCUS GOSSYPINUS. Anat. Record 138(3): 354. 1960. [From Biol. Abstr. 36(11), 1961.] WR 103: 21

Abstract.

Griffo, James V., Jr. (Patuxent Wildl. Res. Center, Laurel, Md.) A STUDY OF HOMING IN THE COTTON MOUSE, PEROMYSCUS GOSSYPINUS. Am. Midl. Nat. 65(2): 257-289, 8 figs. Apr. 1961. WR 103: 21

Based upon a study of approximately 175 cotton mice in north central Fla. "The present data are interpreted to indicate that the mechanism of homing in P. gossypinus involves random movements outside the life range with respect to the homesite and directed movements in relation to the home area from within the life range. In the latter case the animal utilizes a previous familiarity (mnenotaxis) with the general area gained by occasional exploratory wandering, home range shifting, and dispersal from the birthplace. Each of these movements apparently involves environmental imprinting."--From auth. abstr.

Helmreich, R. L. (Yale Univ., New Haven, Conn.) REGULATION OF REPRODUCTIVE RATE BY INTRA-UTERINE MORTALITY IN THE DEER MOUSE. Science 132(3424): 417-418. 12 Aug. 1960. WR 103: 22

Abstract: Under crowded conditions (four mating pairs per cage), pregnant female deer mice of a partially domesticated strain Peromyscus maniculatus bairdii showed increased resorption of implanted embryos, and therefore a 60 percent reduction in effective natality, as compared with control females living at a population density of one pair per cage. No significant difference was found in the incidence of pregnancy or in the number of embryos implanted, but the adrenal glands of crowded females were enlarged by an average of 17 percent (by weight).

Likyavichene, N. [MOUSE-LIKE RODENTS ARE AGRICULTURAL PESTS IN LITHUANIAN SSR.] Nauch. Konf. po Zaschite Rastenii, Vil'nyus, 1958 Doklady: 203-209. 1958. [Listed in Bibliog. Agr. 25(6), 1961.] WR 103: 22

In Russian.

Mills, E. M. THE PRESENT STATUS OF MOUSE CONTROL IN ORCHARDS. N. J. Hort. Soc. Hort. News 42(1): 5, 11, 14. Jan. 1961. [From Bibliog. Agr. 25(5), 1961.] WR 103: 22

Nagornov, K. I. [LIQUID BACTERIAL COMPOUND TO CONTROL MOUSEY RODENTS.] Sel'sk. Khoz. Povolzh'ya 1961(1): 60-61. Jan. 1961. [From Bibliog. Agr. 25(5), 1961.] WR 103: 22

In Russian.

Negus, Norman C., Edwin Gould, and Robert K. Chipman. (Tulane Univ., New Orleans, La.) ECOLOGY OF THE RICE RAT, ORYZOMYS PALUSTRIS (LARLAN), ON BRETON ISLAND, GULF OF MEXICO, WITH A CRITIQUE OF THE SOCIAL STRESS THEORY. Tulane Studies Zool. 8(4): 93-123, 12 figs. 10 May 1961. 60¢. WR 103: 22

A 3-year study of the rice rat Oryzomys palustris on Breton Island, La., is reported. Information is recorded on population density changes, home ranges, reproduction, food habits, growth, adrenal weights, and behavior. Climatic and nutritional factors are considered of great importance in regulating population growth. The adreno-pituitary hypothesis of Christian is discussed in light of these and other data.--From auth. abstr.

Panteleev, P. A. [METHODS FOR TAKING STOCK OF ARVICOLA TERRESTRIS L.] Bull. Moscow Obshch. Ispyt. Prirody (Biol.) 64(1): 25-28. 1959. [From Biol. Abstr. 36(13), 1961, from Referat. Zhur., Biol., 1960, no. 111351.] WR 103: 22

Translation [from Russian]. On the basis of 2 summers' study (1953-1954) in the Stalingrad oblast' an appraisal is given on certain methods for taking stock of the water rat (WR). The calculation of the number per 1 km of water-line is applicable only to those places which are well under water. The calculation based upon feeding spots can be used only for a comparative analysis of the number of WR in the course of the same seasons, though in different years, and in the same reservoirs, since the food composition for WR differs from season to season and from place to place. In applying the trap-linear method of calculation one should take into consideration the general area of biotopes which are convenient to the WR and actually occupied by it. For this purpose, a 1: 2500 scale sketch of the reservoir is recommended. Within the area which was sketched, on the WR tracks, 25 traps are laid at 10 m intervals. For the sake of extrapolation 20-25% of the water bank in a biotope should be flooded for 1 sq km. Then, the total number of WR/km^2, in all of the biotopes, is counted. During the autumn census the area where the WR hibernates is completely flooded, the number of WR is calculated on the whole flooded area, and the number/sq km is extrapolated from it. The deficiency of these methods lies in the relative precision in catching WR.

Scott, Harold George. FIELD RODENTS / PUBLIC HEALTH IMPORTANCE AND CONTROL. Public Health Serv. Publ. no. 797. Unpaged, illus. 1960. For sale by Supt. Documents, Washington 25, D. C. 5¢. WR 103: 22

Tamsitt, J. R. (Univ. Andes, Bogota, Columbia.) MATING BEHAVIOR OF THE PEROMYSCUS TRUEI SPECIES GROUP OF WHITE-FOOTED MICE. Am. Midl. Nat. 65(2): 501-507. Apr. 1961. WR 103: 23
Laboratory study.

Terman, C. Richard. (Penrose Res. Lab., Philadelphia, Pa.) SOME DYNAMICS OF SPATIAL DISTRIBUTION WITHIN SEMI-NATURAL POPULATIONS OF PRAIRIE DEERMICE. Ecology 42(2): 288-302, 6 figs. Apr. 1961. WR 103: 23
Young adult Peromyscus maniculatus bairdii from laboratory stock were released by sets of 4 pairs into 1/2-acre field enclosures. There were 24 subterranean nest boxes in each enclosure and 4 stations where food was supplied in excess. Boxes were visited each day; occupants were marked with colored plastic discs in their ears so they could be identified without handling. There were 8 experimental periods of 3 weeks each; mice were removed after each experiment. Each mouse localized, and during the last 10 days of the experiment used approximately 5 nest boxes. Data are presented and discussed concerning occurrence of pairs and singles in the boxes and successive use of boxes by individuals of the same or different sexes. Observations were made of behavior of mice when they met each other or when they met alien mice tethered in the area. There was more avoidance than conflict, and the author concludes that spatial segregation may result from this avoidance rather than from fighting.--L. F. Stickel.

Wiegert, Richard G. (Univ. Mich., Ann Arbor.) RESPIRATORY ENERGY LOSS AND ACTIVITY PATTERNS IN THE MEADOW VOLE, MICROTUS PENNSYLVANICUS PENNSYLVANICUS. Ecology 42(2): 245-253, 7 figs. Apr. 1961. WR 103: 23
Huddling by voles, even within the temperature range of thermoneutrality, lowers the oxygen consumption. The rate of oxygen consumption has a definite relationship to weight and equations for fasting and non-fasting animals are given. Newly captured voles possessed a bimodal diel activity pattern. Animals held in captivity did not show this. Temperature probably is very important in conditioning the 24-hour activity pattern of Microtus pennsylvanicus under field conditions.--From auth. summ.

RATTUS AND MUS

Anderson, Paul K. (Columbia Univ., New York, N. Y.) DENSITY, SOCIAL STRUCTURE, AND NONSOCIAL ENVIRONMENT IN HOUSE-MOUSE POPULATIONS AND THE IMPLICATIONS FOR REGULATIONS OF NUMBERS. Trans. N. Y. Acad. Sci., Ser. II, 23(5): 447-451, 1 fig. Mar. 1961. WR 103: 23
With 33 references.

Barbehenn, Kyle R. (Natl. Inst. Mental Health, Bethesda, Md.) SOME EFFECTS OF LITTER SIZE ON SOCIAL BEHAVIOR IN LABORATORY RATS. Trans. N. Y. Acad. Sci., Ser. II, 23(5): 443-446, 2 figs. Mar. 1961. WR 103: 23
A positive relationship was indicated between litter size and aggregative feeding behavior, but the achievement of an ideal state of distribution was hampered by low mobility. Territorialism by parturient ♀♀ and aggressive behavior by ♂♂ overrode the initial distributions related to litter size.

Calhoun, John B. (Natl. Inst. Mental Health, Bethesda, Md.) DETERMINANTS OF SOCIAL ORGANIZATION EXEMPLIFIED IN A SINGLE POPULATION OF DOMESTICATED RATS. Trans. N. Y. Acad. Sci., Ser. II, 23(5): 437-442, 2 figs. Mar. 1961. WR 103: 23
A complex social organization developed within an enclosed population of rats was studied for 24 months. Information is presented on the following: litter association effect; behavioral sink development; territoriality and harem formation; velocity, dominance, and homosexuality; maximum social stability; a delayed environmental effect; spatial desertion; and tradition and social rigidity.

Crowcroft, Peter, and F. P. Rowe. (British Museum Nat. Hist., London.) THE WEIGHTS OF WILD HOUSE MICE MUS MUSCULUS LIVING IN CONFINED COLONIES. Proc. Zool. Soc. London 136(2): 177-185, 2 figs. Mar. 1961. WR 103: 24

Wild house mice supplied with excess food and confined in pens rapidly became grossly overcrowded. Mean body weights at specified ages of mice born when overcrowding was acute have been compared with those of mice born earlier. This comparison was necessary to test the hypothesis that overcrowding depresses body weight. In 3 of the 4 pens studied the mice were lighter, but in the fourth they were heavier. There is evidence of great inherent variability in body weight in the species.--From auth. abstr.

SCIURIDS

Barber, Harold L. (P. O. Box 155, West Liberty, Ky.) SQUIRRELS, A STAPLE ITEM OF DIET IN PIONEER DAYS, STILL ARE ONE OF THE MOST HUNTED ANIMALS; WITH AMPLE FOOD THEY'LL ALWAYS BE AROUND. Ky. Happy Hunting Ground 17(4): 4-5, 29, 2 figs. July 1961. WR 103: 24

Kentucky food habit studies indicate that 46 tree species are utilized by squirrels for food. Hickory nuts comprise 30% of the total diet, acorns -- 24%, beechnuts -- 12%, walnuts -- 10%, and yellow-poplar, mulberry, blackgum, and flowering dogwood -- 13%. A discussion is presented on the major factors comprising the habitat of the squirrel: tree size, tree density, and species composition.

Davis, David E. (Pa. State Univ., University Park.) WOODCHUCKS AROUND THE YEAR. Pa. Game News 32(6): 15-17, 2 figs. June 1961. WR 103: 24

During a 5-year study of woodchuck reproduction and disease, 4000 woodchucks were examined. Information is presented on hibernation, reproduction and mortality, home range, and movement.

Jones, J. Knox, Jr., and Gary L. Cortner. THE SUBSPECIFIC IDENTITY OF THE GRAY SQUIRREL (SCIURUS CAROLINENSIS) IN KANSAS AND NEBRASKA. Trans. Kans. Acad. Sci. 63(4): 285-288. 1960. WR 103: 24

The gray squirrels from Nebr. and northern Kans. resemble gray squirrels from the northeastern U. S. more than those from the southeastern U. S.

Kapitonov, V. I. [PARASITES OF THE MARMOT MARMOTA CAMTSCHATICA PALL.] Zool. Zhur. 39(9): 1435-1437. Sept. 1960. [From Bibliog. Agr. 25(5), 1961.] WR 103: 24

In Russian with English summary.

Mitchell, Ormond G. OBSERVATIONS ON THE REPRODUCTIVE CYCLE OF THE MALE ARCTIC GROUND SQUIRREL [SPERMOPHILUS UNDULATUS]. Arctic Aeromed. Lab. (Ladd Air Force Base, Alaska), Tech. Rept. 57-26. 20 p., illus. 1960. [From Polar Record 10(68), 1961.] WR 103: 24

Moore, Joseph Curtis. (Am. Museum Nat. Hist., New York City.) SQUIRREL GEOGRAPHY OF THE INDIAN SUBREGION. Systematic Zool. 9(1): 1-17, 4 figs. Mar. 1960. WR 103: 24

BEAVER

Gard, Richard. (Univ. Calif., Berkeley.) EFFECTS OF BEAVER ON TROUT IN SAGEHEN CREEK, CALIFORNIA. J. Wildl. Mgmt. 25(3): 221-242, 7 figs. July 1961. WR 103: 24

The physical environment of the trout was markedly changed following construction of beaver dams. This change resulted in the production of much greater standing crops of bottom organisms in the ponds than were present in the stream. Rainbow trout living in the ponds depended largely on stream organisms for food, but pond brook and brown trout were supported mainly by pond faunas. The higher standing crop of bottom fauna and the unique physical environment in the ponds were reflected in greater trout populations. Some marked trout were found to cross up and down over most beaver dams at all seasons. There was no evidence that the barrier influence of the dams depressed the level of adult trout populations. It is concluded that beaver are of substantial benefit to trout in Sagehen Creek.--From auth. abstr.

German, A. L. [RESTORATION OF THE BEAVER IN THE LAPLAND STATE NATURE RESERVE.] Bull. Moscow Obshch. Ispyt. Prirody, Nov. Ser. (Biol.) 65(3): 1-19. 1960. [From Polar Record 10(68), 1961.] WR 103: 25

[In Russian.] "Study of numbers and behaviour since reintroduction in 1914. English summary."

Lawrence, William H., Kirby L. Hays, and Samuel A. Graham. (School Nat. Resources, Univ. Mich., Ann Arbor.) ECTOPARASITES OF THE BEAVER (CASTOR CANADENSIS KUHL). Wildl. Disease no. 12. 14 p. 26 June 1961. WR 103: 25

[Numbers 11 and 12 on one microcard.] Epizootic tularemia among beavers in the upper Lake States and central Canada has stimulated interest in the ectoparasites of this animal as possible vectors for the disease. The study was part of investigation of a beaver epizootic in the Upper Peninsula of Mich. during 1953-5. Original observations on ectoparasite-host relationships, distribution, and biologies of eight ectoparasites from Mich. beavers are supplemented by brief account of five ectoparasites reported in the literature from N. Am. beavers. The following ectoparasites were collected from Mich. beavers: Ixodes banksi, Haemolaelaps glasgowi, Laelaps multispinosus, Prolabidocarpus canadensis, Platypsyllus castoris, Leptinillus validus, Corrodopsylla curvata, and Megabothris quirini.--From abstr.

MUSKRAT AND NUTRIA

Karpovich, V. N. [INFORMATION ON THE HELMINTHOFAUNA OF THE MUSKRAT.] Trudy Gel'mintol. Lab. Akad. Nauk SSSR 9: 126-127. 1959. [From Biol. Abstr. 36(14), 1961, from Referat. Zhur., Biol., 1960, no 117392.] WR 103: 25

Translation [from Russian]. A list of helminths has been drawn up on the basis of helminthological examinations of 77 muskrats from the Okskii National Forest, 5 from the Khoperskii National Forest, and the data in the literature. Young muskrats were all infected with Skrjabinomerus desmanae. Thominx marii was usually found in adult muskrats.

FUR ANIMALS, GENERAL

Branch of Wildlife Research. FUR CATCH IN THE UNITED STATES, 1960. US F&WS, Wildl. Leaflet 436. 3 p. June 1961. WR 103: 25

Tabulation of each species of fur animal and the number trapped in each state. Squirrels are no longer considered in these reports due to a lack of information on the number trapped.

BEARS

Hiehle, Jack L., and Jack R. Slosson. (Calif. Dept. Fish & Game, Sacramento 14.) A METHOD OF IMMOBILIZING BEAR FOR EAR TAGGING. Calif. Fish & Game 47(3): 303 + 1 fig. July 1961. WR 103: 25

A description of "a method for immobilizing bear in a culvert trap without the use of drugs.... The principle of the holding device is a squeeze door which is forced down on the bear's neck when the animal sticks its head through an opening in the main trap door."

Meehan, William R. (Alaska Dept. Fish & Game, Juneau.) OBSERVATIONS ON FEEDING HABITS AND BEHAVIOR OF GRIZZLY BEARS. Am. Midl. Nat. 65(2): 409-412. Apr. 1961. WR 103: 25

Salmon and highbush cranberries were the major food items in Aug. Territorialism and social hierarchy are considered.

RACCOON, RINGTAIL, COATI

Sanderson, Glen C. (Ill. Nat. Hist. Survey, Urbana.) THE LENS AS AN INDICATOR OF AGE IN THE RACCOON. Am. Midl. Nat. 65(2): 481-485, 1 fig. Apr. 1961. WR 103: 26

Abstract: The growth rate of the lens of the eye was studied as a means of determining age in the raccoon. One hundred and nineteen raccoons were studied, including 3 embryos, 18 born in captivity, 42 captured in the wild and kept in captivity for varying periods, and 56 wild animals. Ages of all but those born in captivity were estimated, but these estimates are believed to have an error of no more than ± 2 months. Weights of the dried lenses were used to construct a growth curve which will indicate the month of birth for animals less than 12 months of age, and will estimate the relative age composition of groups of older animals.

MUSTELIDS

Boolootian, Richard A. (Univ. Calif., Los Angeles.) THE DISTRIBUTION OF THE CALIFORNIA SEA OTTER. Calif. Fish & Game 47(3): 287-292, 3 figs. July 1961. WR 103: 26

A tally of 638 Calif. sea otters was made during a 1957 aerial survey of the Calif. coast. The otters were in 14 herds, the largest of which contained 144 animals.

Lockie, J. D. (Nature Conservancy, 12 Hope Terrace, Edinburgh 9.) THE FOOD OF THE PINE MARTEN MARTES MARTES IN WEST ROSS-SHIRE, SCOTLAND. Proc. Zool. Soc. London 136(2): 187-195, 1 fig. Mar. 1961. WR 103: 26

The study based on 337 droppings was conducted in the Beinn Eighe Natl. Nature Reserve, West Ross-shire during 1956-8. The technique of studying food from droppings and the need for correction factors are discussed. The food varied both in size and nature, but small rodents and small birds formed the bulk of the diet at all times of the year. Ninety per cent of the small rodents eaten were short-tailed voles (Microtus agrestis).--From auth. abstr.

Nyholm, Erik S. KÄRPÄSTÄ JA LUMIKOSTA JA NIIDEN TALVISISTA ELINPIIREISTÄ. [ON STOAT AND WEASEL AND THEIR WINTER HABITAT.] Suomen Riista 13: 106-116, 9 figs. 1959. WR 103: 26

In Finnish with English summary on separate mimeo. sheet. Based on a 1952-8 study. The home range of 63 stoats (46 ♀♀ and 17 ♂♂) was ascertained. The ♀♀ averaged 7.4 hectares and ♂♂ averaged 34.2 hectares. Stoat use several different hunting areas and switch from one area to another with a few days interval. The home range of the ♀ weasel averaged 1.2 hectares, the corresponding value for the ♂ was 1.7 hectares. The home ranges may easily overlap due to the different hunting methods of the two animals.--From auth. summ.

DOGS, WOLVES, FOXES

Mech, Dave. (Purdue Univ., Lafayette, Ind.) EXIT TIMBER WOLF, ENTER COYOTE. Animal Kingdom 64(3): 89-92, 4 figs. May-June 1961. WR 103: 26

In the Northeast, coyotes have filled the niche left by the extermination of the timber wolf. Despite local control measures, the coyote appears to be extending its range.

Sampson, Frank W. MISSOURI'S VANISHING WOLVES. Mo. Conserv. 22(6): 5-7. June 1961. WR 103: 26

Red wolves are vanishing in Mo. Only 4 have been authoritatively identified in the last 28 years. The last authenticated red wolf kill was made in 1942. From 1941 to 1947, government hunters trapped 1,607 wolf-like animals. In addition, 3,754 more were trapped by extension farmers from 1946 to June of 1960. Nearly all of these 5,361 animals were classified as coyotes.

BIG GAME, GENERAL

Alexandrova, I. V., and L. I. Krassovsky. [CONTRIBUTIONS TO THE FORMER POPULATION DENSITY OF ELKS IN RUSSIA.] Zool. Zhur. 39(9): 1441-1442. Sept. 1960. [From J. Mammal. 42(2), 1961.] WR 103: 27
In Russian with English summary.

Cherchenko, I. I. [BRUCELLOSIS IN THE FAR NORTH. I. IN REINDEER.] J. Microbiol. (Moscow) no. 3. p. 135-138. 1961. [Abstr. from Vet. Bull. 31(7), 1961.] WR 103: 27
"[In Russian. Summary in English.] C[herchenko] discussed previous Russian publications on this subject and gave the results of investigations in the Yakut area. High agglutinin titres were found in 28 of 54 reindeer. Attempts to isolate the organism from blood failed. [An English translation will appear in J. Microbiol. Epidem. Immunobiol. 32, No. 3.]--R.M."

Davidson, M. M., and R. I. Kean. ESTABLISHMENT OF RED-DEER RANGE IN THE TARARUA MOUNTAINS. New Zealand J. Forestry 8(2): 293-324. 1960. [From Bibliog. Agr. 25(6), 1961.] WR 103: 27

Eddy, Thomas A. (Univ. Ariz., Tucson.) FOODS AND FEEDING PATTERNS OF THE COLLARED PECCARY IN SOUTHERN ARIZONA. J. Wildl. Mgmt. 25(3): 248-257. July 1961. WR 103: 27
The foods of Pecari tajacu were determined in 3 desert habitats by the feeding-minutes technique, and by analyses of droppings and stomach contents. Pricklypear (Opuntia spp.) was the major food item in the palo verde-bursage-cacti vegetative type. Pricklypear and century plant (Agava spp.) were the most important foods in the desert grassland vegetative type. Century plants and tubers made up the bulk of the peccaries' diet in the oak-grassland vegetative type. Seasonal feeding-activity patterns were noted. Late spring, summer, and early fall were characterized by a mid-day rest period. Winter feeding activity generally lasted throughout the day. Temperatures of approximately 90 F caused peccaries to terminate feeding activity and seek resting places. Significant competition between cattle and peccaries probably did not exist except in rare cases where the supply of important food plants was low and peccary numbers were high.--Author.

Geist, V. (Univ. British Columbia, Vancouver.) FERAL GOATS IN BRITISH COLUMBIA. Murrelet 41(3): 34-40, 1 fig. Sept.-Dec. 1960. WR 103: 27
The known history is presented of the Saturna, Galiano, and Saltspring Islands goat herds. The nematode parasites Ostertagia (trifurcata?), Oesophagostomum venulosum, Trichuris ovis, and Scrjabinema ovis have been found in feral goats. Pathological conditions were not uncommon. Kidding seems to be concentrated in Apr. and May, though newborn kids may be seen anytime of the year. A brief discussion of the makeup of the herds and their behavior is presented. The feral state had no apparent effect on physical type and body size of goats.--From auth. summ.

Hennig, Rolf. ÜBER DIE BEDEUTUNG DES JAGDWISSENSCHAFTLICHEN BIOZÖNOLOGIE UND VERHALTUNGSFORSCHUNG FÜR DIE FRAGE DER ROTWILDSCHÄDEN IM WALDE. [IMPORTANCE OF INVESTIGATING THE BIOCOENOSES OF THE GAME HABITAT AND GAME BEHAVIOR FOR SOLVING THE PROBLEM OF RED-DEER DAMAGE TO FORESTS.] Schweiz. Z. Forstw. 111 (12): 746-756. 1960. [From Biol. Abstr. 36(13), 1961.] WR 103: 27
[In German.] Among the factors affecting damage by browsing and peeling of trees by red deer are: the kinds and quantity of forage available, size and age-structure of the deer herd, and the possibility of the deer being able to maintain their normal daily rhythm of activities. Given adequate supplies of the various kinds of feed that they need, and freedom to feed, chew the cud, and sleep undisturbed at 5-6 times during the day, healthy deer would have neither the inclination nor the time to peel and browse the trees. Game management should aim to maintain herd of optimum size, with a good balance of ages and sexes, by selective shooting.--W. N. Sparhawk.

Kelsall, John P. CO-OPERATIVE STUDIES OF BARREN-GROUND CARIBOU 1957-58. Wildl. Mgmt. Bull. Ser. 1, no. 15. Canada Dept. Northern Affairs & Natl. Resources, Ottawa. 145 p., 10 maps. Aug. 1960. WR 103: 28

The study was divided into the following: movement of the study herd; population studies; birth of calves; windchill study; predation; human utilization; range studies; and accidents, disease, and parasites. There is an appendix by Harold C. Gibbs on caribou disease investigations during 1957-8.

Kindel, Fred. (Soda Springs, Idaho.) THE 1960 MOUNTAIN GOAT HUNTING SEASON. Idaho Wildl. Rev. 14(1): 3-7, 4 figs. July-Aug. 1961. WR 103: 28

For Idaho, during the 1960 mountain goat hunting season, 282 hunters killed an estimated 137 mountain goats. The mountain goat population is estimated at less than 3,000 animals. The annual estimated production of the herd is about 700 young. Of the goats killed and classified as to sex during the last 5 years, 55% have been *dd*. There was little interest shown in hunting mountain goats. On the controlled hunt areas only 94 of the 115 available permits were sold. The average expenditure for hunting mountain goats was $268 for the 111 non-resident hunters and $67 for the 171 resident hunters.

Koryakin, D. A. [REGULATION OF THE DENSITY OF ELKS.] Lesn. Khoz. 1960 (10): 24-26. Oct. 1960. [From Bibliog. Agr. 25(6), 1961.] WR 103: 28

In Russian.

Krebs, Charles J. (Univ. British Columbia, Vancouver.) POPULATION DYNAMICS OF THE MACKENZIE DELTA REINDEER HERD, 1938-58. Arctic 14(2): 91-100, 2 figs. June 1961. WR 103: 28

A brief history is given of the Mackenzie Delta reindeer herd. This herd has consisted of a nucleus main herd and native herds operated by Eskimos. All but one of the native herds have been a failure. The effect of 3 population determining factors (birth rate, death rate, and dispersal rate) on the total annual increment of the herd is analyzed. Dispersal was the most important factor and birth rate the least. There is no evidence of any changing effect of the sex and age distribution on either birth or dispersal rates. Dispersal is not related to herd size or to the number of yearlings present in the herd, and appears to be due to factors outside of the herd.

Linnamies, Olafi. HIRVIEN METSÄVAHINGOISTA HIRVIVAHINKOKOMITEAN MIETINTÖ VALMISTUNUT. [ON FOREST DAMAGE CAUSED BY MOOSE (ACCOUNT OF THE REPORT OF THE MOOSE DAMAGE COMMITTEE).] Suomen Riista 13: 176-182, 1 fig. 1959. WR 103: 28

In Finnish with English summary on separate mimeo. sheet. Information on moose damage, which occurred during 1951-7, was collected from about 12,000 estates. The damages have mainly affected pine and aspen stands (pine 77%, aspen 21%). In about 85% of the cases, the seedling stands have remained fit for cultivation.

Lønø, Odd. TRANSPLANTATION OF THE MUSKOX IN EUROPE AND NORTH-AMERICA. Meddel. Norsk Polarinstituut 84: 1-25. 1960. [From J. Mammal. 42(2), 1961.] WR 103: 28

Melichar, J. ZIMNÍ KONCENTRACE JELENÍ ZVĚŘE. [WINTER CONCENTRATIONS OF CERVUS ELAPHUS.] Práce Výzkum. Úst. Lesn. ČSR no. 20. p. 95-107. 1960. [From Commonwealth Forestry Bur., Centralized Title Serv. Cards, 8 May 1961.] WR 103: 28

In Czech with Russian and German summaries. Six references.--Courtesy/ Frank M. Johnson.

Rausch, Robert A., and Ralph W. Ritcey. (Alaska Dept. Fish & Game, College.) NARCOSIS OF MOOSE WITH NICOTINE. J. Wildl. Mgmt. 25(3): 326-328. July 1961. WR 103: 28

Nicotine was largely unsatisfactory as a narcotic agent when used on excited or fatigued moose. In most cases it failed to immobilize sufficiently to allow the animal to be safely handled. Further, the mortality rate was much too high. No known mortality directly attributable to nicotine resulted from injection of 16 undisturbed moose. Immobilization was complete in 8 instances when an average of 5 mg/lb of body weight was administered. The carbon dioxide-powered Palmer Cap-Chur equipment did not function satisfactorily in cold weather. Manfunction of the syringe complicated evaluation of the effectiveness of nicotine as a narcotizing agent.--R. A. Rausch.

Robertson, J. D. CARIBOU TAGGING. Beaver 292: 24-27, 5 figs. Summer 1961. WR 103: 29

During a nine-day period in Sept. 1959, a total of 112 barren-ground caribou was tagged while swimming across Duck Lake, Manitoba. In Sept. 1960, two tagging crews succeeded in tagging 226 caribou.

Rykovskii, A. S. [INFORMATION ON THE HELMINTHS OF THE ELK AND FACTORS IN THEIR DEVELOPMENT.] Trudy Gel'mintol. Lab. 9: 253-263. 1959. [From Biol. Abstr. 36(14), 1961, from Referat. Zhur., Biol., 1960, no. 105789.] WR 103: 29

Translation [from Russian]. The author reports data obtained from the literature and from a study of 26 elks in the Kaluga oblast. The elks of the palearctic are infected by 38 species of helminths: 4 species of trematodes, 5 cestodes, and 29 nematodes. Geographically the helminths of the elk can be divided into 2 groups: interregional -- distributed in the given host over its entire range, and localized -- parasitizing the given host over only part of its range. Parafasciolopsiasis seems to be the most dangerous helminth disease of the wild elk. The seasonal dynamics of helminthic invasion of the elk were studied by means of coprological analyses. Of 23 species of elk helminths, 5 were specifically parasitic for the elk. The prevalence of helminths in domestic animals plays an important role in the development of the helminthofauna of the elk. When elks are maintained in captivity, there is an abrupt change in their way of life and nutrition, which leads to a change in their helminthofauna. Congested maintenance of elk leads to an increase in trichocephalosis. The protection of the wild animals is related to the successful treatment of the domestic animals, thus preventing infection of the wild animals by the domestic ones, to soil improvement and to mollusk control. Dehelminthization of wild elk by adding therapeutic preparations to the feeding places is also recommended.

Schloeth, R., K. Klinger, and D. Burckhardt. MARKIERUNG VON ROTWILD IN DER UMGEBUNG DES SCHWEIZERISCHEN NATIONAL-PARKES. [MARKING OF RED DEER IN THE SWISS NATIONAL PARKS.] Rev. Suisse Zool. 67(2): 281-286, illus. 1960. [From Biol. Abstr. 36(10), 1961.] WR 103: 29

Methods of trapping, marking with leather neck bands, narcotizing.--R. M. Chew.

Severinghaus, C. W. NEW YORK'S BIG GAME TAKE--SEASON OF 1960. Conservationist (N. Y.) 15(6): 32-34. June-July 1961. WR 103: 29

During the 1960 big-game season in N. Y., hunters took 45,755 deer including 34,065 adult ♂♂, 1,856 ♂ fawns, 8,079 adult ♀♀, and 1,755 ♀ fawns. In addition, 622 black bear were taken. The kill for each county in the Adirondacks, Catskills, and central and western areas of N. Y. is tabulated.

Stoican, E., and G. Olteanu. CONTRIBUTII LA STUDIUL HELMINTOFAUNEI CĂPRIOAREI (CAPREOLUS CAPREOLUS) IN R.P.R. [CONTRIBUTIONS TO THE STUDY OF THE HELMINTHOFAUNA OF ROE-DEER (CAPREOLUS CAPREOLUS) IN RUMANIA.] Probleme de Parazitol. Vet. Inst. Patologie si Igiena Animala (Bucharest) no. 7. p. 38-46. 1959. [From abstr. in Helminthol. Abstr. 30(2), 1961.] WR 103: 29

The incidence of helminths was Dicrocoelium dendriticum 14%, Fasciola hepatica 28.5%, Moniezia benedeni 42.8%, Trichostrongylus colubriformis 57%, Haemonchus contortus 42.5%, Nematodirus filicollis 100%, Dictyocaulus eckertii 28.5%, Setaria sp. 57%, Gongylonema pulchrum 42%.

Straley, Jim. (Pinedale, Wyo.) MOOSE MANAGEMENT. Wyo. Wildl. 25(8): 27-30, 1 fig. Aug. 1961. WR 103: 29

During the 1960 moose hunting season in Wyo., 771 moose were killed. The results from a hunter questionnaire are summarized. For the last 3 years the hunter harvest has shown a bull : cow ratio of 2 : 1, whereas field studies indicate a bull : cow herd ratio of 85 : 100. In 11 hunting areas the calves per 100 cows vary from 45 to 65. The average for the past 3 years is 53. The moose herd is composed of 43% cows, 22% calves, and 35% bulls.

Talbot, Lee M., and Hugh F. Lamprey. (Box 30116, Nairobi, Kenya, East Africa.) IMMOBILIZATION OF FREE-RANGING EAST AFRICAN UNGULATES WITH SUCCINYLCHOLINE CHLORIDE. J. Wildl. Mgmt. 25(3): 303-310. July 1961. WR 103: 30

The results to date of the use of succinylcholine chloride on 121 individual animals of 7 species of wild ungulates are summarized and the use of the drug in field immobilization is briefly reviewed. Methods are described including delivery of the drug, handling and translocation of immobilized animals, weight determination, and dosage rate determination. The properties, effects, advantages, and disadvantages of the use of succinylcholine chloride in the field are discussed.--From auth. summ.

Valentinčič, S. I. NOSTRE OSSERVAZIONI SULLE MALATTIE DEI CAPRIOLI. [DISEASES OF ROE-DEER.] Nuova Vet. 36: 188-190. 1960. [From abstr. in Vet. Bull. 31(7), 1961.] WR 103: 30

[In Italian with summaries in English, French, German, and Spanish.] The commonest causes of death in 169 roe-deer at the Ljubliana Vet. Faculty, Yugoslavia, during 1955-60 were helminth infestation (50%) and gastro-enteritis (14%).

Whitehead, G. Kenneth. THE DEER STALKING GROUNDS OF GREAT BRITAIN AND IRELAND. Hollis and Carter Ltd., London. xviii + 556 p., 38 photos. 1960. 126 shillings net. [From long review by F.S.R. Fitter in Nature 189(4763), 1961.] WR 103: 30

"This is the first really comprehensive survey of deer forests in the British Isles and...the first with such abundant statistics of the deer bagged. The major part of the book consists of an alphabetical list of deer forests, with the following details: acreage; area above 1,500 ft., and below 1,000 ft., highest and lowest ground; number of deer killed annually, divided into stags and hinds for both pre-1940 and post-war; average weight of stags and hinds, with...particulars of the most important herds recorded for the forest. A series of detailed appendices...a dozen useful maps...a bibliography and several indexes [complete the work].... One can have no hesitation in affirming that this very thorough piece of work will hold its own as the standard work on British deer forests until the end of the century."

Yeager, Lee E. (Colo. Coop. Wildl. Res. Unit, Fort Collins.) SNOW ON THE BIG GAME RANGE. Colo. Outdoors 10(2): 8-12, 5 figs. Mar.-Apr. 1961. WR 103: 30

Snow is the main factor limiting big game populations in Colo. Deep snow covers about 90% of the deer range throughout the winter months--forcing the whole herd to utilize the remaining 10%. Intensive management of big game winter range is necessary since: (1) three-fourths of the original winter range is occupied by man; (2) more land is being lost each year to urban developments; (3) more bottom-lands and adjoining slopes are likely to be lost to multiple purpose reservoirs; and (4) there is an increased demand for hunting as the population increases.

Zablotskii, M. A. [INTRODUCTION OF THE BISON IN THE USSR AND ABROAD.] Akad. Nauk SSSR, Kommissiya po Okhrane Prirody, Byull. 4: 52-70. 1960. [Listed in Bibliog. Agr. 25(6), 1961.] WR 103: 30

In Russian.

DEER (Odocoileus)

Adams, William H., Jr. (Tenn. Wesleyan Coll., Athens.) CHOCCOLOCCO DEER RANGE ANALYSIS AND MANAGEMENT IMPLICATIONS. Proc. 13th Ann. Conf. SE Assoc. Game & Fish Comms. p. 21-34, 6 figs. 1959 [1961]. WR 103: 30

A range analysis conducted in Ala. from Sept. 1956 to May 1959. It clearly indicated that the trend is toward rapid deterioration of the range as suitable deer habitat. Honeysuckle, hydrangea, mountain laurel, sweetleaf, and red cedar displayed distinct browse lines in many localities. Reproduction was severely hampered or prevented entirely on strawberry-bush and yellow poplar in many stream bottom sites. Indicative of this trend was the initial and limited utilization of generally regarded low quality food plants such as pine and alder. This method of range analysis can be applied to other areas in the Southeast and give rapid and accurate results.

Adams, William H., Jr. (Tenn. Wesleyan Coll., Athens.) POPULATION ECOLOGY OF WHITE-TAILED DEER IN NORTHEASTERN ALABAMA. Ecology 41(4): 706-715, 7 figs. Oct. 1960. WR 103: 31

A study on the basic ecology and management of a white-tailed deer population in the Choccolocco Wildl. Mgmt. Area in Ala. during 1956-8. Range deterioration was evidenced by overbrowsing of many important food plants and the establishment of a browse line in areas of high deer concentrations. This condition was correlated with increased numbers of younger bucks with spike antlers and with does in poor physical condition with single embryos after initial pregnancy. The Choccolocco deer population in early 1959 consisted of approximately 2,000 breeding animals with a sex ratio of 1♂ to 3♀♀ and a previous summer crop of 1,500 fawns. Peak breeding occurs in Dec. with subsequent fawning between mid-June and early July. Does rarely ever bred as fawns. They usually had a single fawn during their first pregnancy and twin fawns during subsequent pregnancies. The present Choccolocco deer population has exceeded the optimum carrying capacity because of inadequate removal of surplus animals.--From auth. summ.

Alibasoglu, Mehmet, David C. Kradel, and H. W. Dunne. (Pa. State Univ., University Park.) CEREBRAL NEMATODIASIS IN PENNSYLVANIA DEER (ODOCOILEUS VIRGINEANUS). Cornell Vet. 51(3): 431-441, 4 figs. July 1961. WR 103: 31

Summary: A survey of 81 deer heads in Pennsylvania for the presence of Elaphostrongylus tenuis is described. Seventy-five percent were found to be infected. Histologically a chronic, nonpurulent, eosinophilic, verminous meningitis involving principally the dura mater was found. Clinical observations and histological studies would indicate that under some circumstances these parasites are responsible for nervous disorders in deer. The possibility of the central nervous system being involved in the life cycle of a deer lungworm is suggested by the reviewed literature.

Banasiak, Chester F. (Univ. Maine, Orono.) DEER IN MAINE. Dept. Inland Fisheries & Game, Game Div. Bull. no. 6. ix + 159 p., unnumbered photos. Jan. 1961. WR 103: 31

This bulletin is a compilation and presentation of many studies and facts of the deer in Maine. The known factors of reproduction and mortality are discussed, on a statewide basis, and brought together to derive reasonable estimates of total mortalities and population levels necessary to sustain losses. Annual mortality of the deer herd is 107,000. Winter is the most critical season of the year for deer in Maine; hence studies of deer behavior and habitat requirements have been limited to that period. Pre-fawning deer population is estimated at 180,000 and pre-hunting herd at 250,000. Deer yard surveys conducted since 1953 point to winter food shortages in 40% of the yards in the forest regions. The best deer come from the farm-woodlands lying west of the Penobscot River. This region is characterized thus: (1) relatively mild winters; (2) mixture of farm and woodlands; (3) densest human population; (4) heavy hunting pressure; (5) excellent access; (6) high deer kill per square mile; and (7) deer population generally in balance with winter food supplies. About 40,000 deer (statewide) are harvested annually. The forest herds are still under-harvested. Redistribution of hunting pressure through season adjustment is the current deer management need. Seven studies on raising the carrying capacities of deer yards are discussed.--From auth. summ.

Gould, Walter P., and James H. Brown, Jr. (Univ. R. I., Kingston.) ATLANTIC WHITE-CEDAR AS A WINTER DEER BROWSE. J. Wildl. Mgmt. 25(3): 342. July 1961. WR 103: 31

Nutritional comparisons made between Atlantic white-cedar (Chamaecyparis thyoides) and northern white-cedar (Thuja occidentalis) suggest that Atlantic white-cedar may be a winter deer browse comparable with northern white-cedar.--J. H. Brown.

Ives, F. F. DEER REPELLENTS. Oreg. State Hort. Ann. Rept. 52. p. 59. 1960. [From Bibliog. Agr. 25(5), 1961.] WR 103: 31

Ives, F. F. METHODS OF DEER DAMAGE CONTROL. Oreg. State Hort. Ann. Rept. 52. p. 86. 1960. [From Bibliog. Agr. 25(5), 1961.] WR 103: 31

Jensen, Dale. DEER TRAPPING AND TAGGING. Idaho Wildl. Rev. 14(1): 8-9, 5 figs. July-Aug. 1961. WR 103: 32

After two hunting seasons 46 deer (17%) of the 358 deer tagged from 1959 to 1961 were bagged by hunters. This number can be further divided to show a 16% kill of the 83 deer tagged in 1959, and a 15% kill of the 193 deer tagged in 1960. An additional 4 deer of the 1959 tagging season were taken by hunters two years later.

Rosen, Merton N., and Francis F. Holden. (987 Jedsmith Dr., Sacramento, Calif.) MULTIPLE PURULENT ABSCESS CORYNEBACTERIUM PYOGENES OF DEER. Calif. Fish & Game 47(3): 293-300, 1 fig. July 1961. WR 103: 32

During a 13-year period, 24 deer have been found to have an infection with C. pyogenes. Other pyogenic bacteria have been identified including staphylococci, streptococci, and C. pseudotuberculosis. Actual incidence of the disease in the wild is unknown. The methods of possible infection and the locations of the infections in the body of the animal are discussed. There seems to be no age, sex, geographic, or seasonal difference as far as susceptibility is concerned. The 4 subspecies of deer that have been found to be infected (the Rocky Mountain, California, and Inyo mule deer, and the Columbian blacktail deer) have no differential incidence relative to this disease.

Ryel, L. A., L. D. Fay, and R. C. Van Etten. (Mich. Dept. Conserv., Lansing.) VALIDITY OF AGE DETERMINATION IN MICHIGAN DEER. Papers Mich. Acad. Sci., Arts & Letters 47: 289-316, 13 figs. 1961. WR 103: 32

Data from a collection of known-age mandibles indicated that Mich. standards based on N. Y. deer are not accurate. Comparisons with N. Y. data disclosed slower replacement of incisors and premolars and a much-reduced rate of wear with increasing age on cheek teeth. A new aging key for use in Mich. is presented with suggestions for improving precision in the application of the technique.--From auth. summ.

Seneca, Ernest D. DEER DISTRIBUTION, USAGE AND POPULATION ON THE BROAD RUN MANAGEMENT AREA, CRAIG COUNTY, VIRGINIA. M.S. thesis, Va. Poly. Inst. 173 p. 1961. WR 103: 32

The second phase of a 10-year appraisal of forest-wildlife management. Track imprint data indicate a lessened use by deer of agricultural-type clearings as clearings age. The 1/100 acre circular plot was determined to be the optimum plot size for use in pellet group counts; winter pellet counts were the most reliable of the seasonal counts for estimating deer populations. --Burd S. McGinnes.

Severinghaus, C. W. (N. Y. Conserv. Dept., Delmar.) A METHOD FOR DETERMINING THE FREQUENCY OF WINTERKILLED DEER PER SQUARE MILE. N. Y. Fish & Game J. 8(1): 61-63. Jan. 1961. WR 103: 32

Presentation of a survey method for determining the number of winterkilled deer in an area. The area is divided into strips of standardized widths (75, 100, 150, and 200 feet), and one man is designated to cover each strip and count the number of dead deer. For N. Y. conditions, crews of two to four men are the most practical.

Taber, R. D. THE BLACK-TAILED DEER: A REVIEW OF ECOLOGY AND MANAGEMENT. Intern. Union Conserv. Nat. & Nat. Resources, Tech. Meeting 8(4). 21 p. 1960. [From Bibliog. Agr. 25(5), 1961.] WR 103: 32

"Effects on ranges and forests."

Taber, Richard D., Keith L. White, and Norman S. Smith. (Mont. State Univ., Missoula.) THE ANNUAL CYCLE OF CONDITION IN THE RATTLESNAKE, MONTANA, MULE DEER. Proc. Mont. Acad. Sci. 19: 72-79. [1959.] WR 103: 32

Fifty mule deer, of both sexes and all ages, were taken fairly evenly through 1958. The objectives were to define and measure four aspects of physiological reserves: muscle tissue, weight, serum protein content, and stored fat and adrenal hypertrophy.

DEER (Odocoileus)--Continued

Trainer, D. O., Jr., Lars Karstad, and R. P. Hanson. (Wis. Conserv. Dept., Madison.) EXPERIMENTAL LEPTOSPIROSIS IN WHITE-TAILED DEER. J. Infectious Diseases 108(3): 278-286, 3 figs. May-June 1961. WR 103: 33

In this study, leptospirosis proved to be a clinically inapparent disease of nonpregnant deer, although abortions were induced in 4 of 5 pregnant does. Leptospirosis appears to be unimportant as a disease of unbred deer. Its ability to induce abortions in pregnant deer needs further study before its role in relation to the reproductive potential of a deer herd can be assessed.--From auth. summ.

Wood, A. J., H. C. Nordan, and I. McT. Cowan. (Univ. British Columbia, Vancouver.) THE CARE AND MANAGEMENT OF WILD UNGULATES FOR EXPERIMENTAL PURPOSES. J. Wildl. Mgmt. 25(3): 295-302, 8 figs. July 1961. WR 103: 33

Housing facilities, cost of operation, and devices for supplying feed and water to a deer colony under controlled circumstances are described. Diet formulations for the milk period, weaning, and maintenance are given.--I. McT. Cowan.

Yuill, T. M., J. B. Low, and P. R. Fitzgerald. (Dept. Vet. Sci., Univ. Wis., Madison 1.) THE FOOT WORM OF NORTHERN UTAH DEER. Wildl. Disease no. 10. 5 p. 26 June 1961. WR 103: 33

[Numbers 9 and 10 on one microcard.] Abstract: During the 1958 hunting season, 126 mule deer from the Uintah and Wasatch Ranges of Cache County, Utah, were examined for the foot worm of deer, Wehrdikmansia cervipedis. Both severity and prevalence of infection increased with age. All age groups, with the exception of fawns, were infected. Both sexes were equally infected. Only one of over 40 animals examined from other areas of Utah were infected.

Zielyk, M. W. (52 Westbourne Parkway, Hartford, Conn.) OPHRYOSCOLECID FAUNA FROM THE STOMACH OF THE WHITE-TAILED DEER (ODOCOILEUS VIRGINIANUS BOREALIS), AND OBSERVATIONS ON THE DIVISION OF ENTODINIUM DUBARDI BUISSON 1923 (CILIATA ENTODINIOMORPHA). J. Protozool. 8(1): 33-41, illus. 1961. [From Biol. Abstr. 36(13), 1961.] WR 103: 33

MAMMALS--MARINE

Backhouse, K. M. THE GREY SEAL (HALICHOERUS GRYPUS), OUTSIDE THE BREEDING SEASON. A PRELIMINARY REPORT. Mammalia (Paris) 24(3): 307-312. Sept. 1960. [From J. Mammal. 42(2), 1961.] WR 103: 33

Backhouse, K. M., and P. J. G. Smart. (Charing Cross Hospital Med. School, London, W.C. 2.) THE MECHANISM OF WAVE RIDING IN PORPOISES. Proc. Zool. Soc. London 136(2): 197-200, 1 fig., 1 pl. Mar. 1961. WR 103: 33

Abstract: The characteristics of wave riding porpoises are described showing that the animals use a breaking bow wave in much the same way as a human surf-rider planes in a breaking wave.

Bartholomew, George A., and Carl L. Hubbs. POPULATION GROWTH AND SEASONAL MOVEMENTS OF THE NORTHERN ELEPHANT SEAL, MIROUNGA ANGUSTIROSTRIS. Mammalia (Paris) 24(3): 313-324, 2 pls. Sept. 1960. WR 103: 33

Belkovich, V. M. [SOME BIOLOGICAL OBSERVATIONS ON WHITE DOLPHIN FROM THE AIRPLANE.] Zool. Zhur. 39(9): 1414-1422. Sept. 1960. [From J. Mammal. 42(2), 1961.] WR 103: 33

In Russian with English summary.

Brown, Sidney G. SWORDFISH AND WHALES. Norsk Hvalfangst-Tidende 49(8): 345-351. 1960. [From Polar Record 10(68), 1961.] WR 103: 33

"Attacks by swordfish on whales."

Carrick, Robert, and Susan E. Ingham. ECOLOGICAL STUDIES OF THE SOUTHERN ELEPHANT SEAL, MIROUNGA LEONINA (L.), AT THE MACQUARIE ISLAND AND HEARD ISLAND. Mammalia (Paris) 24(3): 325-342, 1 pl. Sept. 1960. [From J. Mammal. 42(2), 1961.] WR 103: 33

Coulson, J. C., and Grace Hickling. THE GREY SEALS OF THE FARNE ISLAND, 1958 TO 1959. Trans. Nat. Hist. Soc., Northumberland, Durham and Newcastle upon Tyne 13(new ser. 6): 151-178. June 1960. [From J. Mammal. 42(2), 1961.] WR 103: 34

Dawbin, W. H. THE COMPOSITION OF THE NEW ZEALAND WHALE CATCH IN 1959. Norsk Hvalfangst-Tidende (Norwegian Whaling Gazette) 49(9): 401-409. Sept. 1960. [From J. Mammal. 42(2), 1961.] WR 103: 34

Edwards, R. L., and R. Livingstone, Jr. (US F&WS, Biol. Lab., Woods Hole, Mass.) OBSERVATIONS ON THE BEHAVIOR OF THE PORPOISE DELPHINUS DELPHIS. Science 132(3418): 35-36, 1 fig. 1 July 1960. WR 103: 34

Abstract: Common porpoises have been observed in January, in the area of the Hudson Canyon, feeding on fish that escaped an otter trawl. An echo-sounder also recorded, in one instance, a descent of a porpoise to a depth of 200 feet in less than 2 minutes.

Fitter, R. S. (Intelligence Unit, Council for Nature, 41 Queen's Gate, London, S.W.7.) STATUS OF THE GREY SEAL. Nature 189(4763): 506. 11 Feb. 1961. WR 103: 34

The problems involved in making an accurate census of the population are presented. With a seal population 2 to 3 times as great as the wildest estimate so far made, the gray seal on the world scale is relatively rare.

Ingham, S. E. THE STATUS OF SEALS (PINNIPEDIA) AT AUSTRALIAN ANTARCTIC STATIONS. Mammalia 24(3): 422-430. 1960. [From Polar Record 10(68), 1961.] WR 103: 34

Johannessen, C. L., and J. A. Harder. (Univ. Oreg., Eugene.) SUSTAINED SWIMMING SPEEDS OF DOLPHINS. Science 132(3439): 1550-1551. 25 Nov. 1960. WR 103: 34

Observations of four large groups of dolphins suggest that they are able to swim at a sustained speed of 14 to 18 knots. The blackfish are able to maintain speeds of about 22 knots, and one killer whale seemed able to swim somewhat faster.--From auth. abstr.

Kenyon, Karl W. THE PACIFIC WALRUS. Oryx 5(6): 332-340, illus. 1960. [From Polar Record 10(68), 1961.] WR 103: 34

"Odobaenidae; problems of conservation discussed."

Kleinenberg, S. E. [STUDY OF MARINE MAMMALS IN THE USSR.] Vest. Akad. Nauk. USSR 3: 106-108. 1960. [From Biol. Abstr. 36(13), 1961, from Referat. Zhur., Biol., 1960, no. 117335.] WR 103: 34

Translation [from Russian]. Report on the All-Union Conference on the Study of Marine Mammals, held in Moscow, 15-19 Dec. 1959.

Lilly, John C., and Alice M. Miller. (Communication Res. Inst. of St. Thomas, U. S. Virgin Islands and Miami, Fla.) SOUNDS EMITTED BY THE BOTTLENOSE DOLPHIN. Science 133(3465): 1689-1693, 4 figs. 26 May 1961. WR 103: 34

Three classes on sonic emissions of the bottlenose dolphin are discussed and presented graphically. The sine-type wave whistles range in frequency from about 4,000 to 18,000 cycles per second. The "clicks" contain components of this same frequency range plus some components of higher frequencies. Complex waves of high amplitude and of many frequencies are also emitted in water or in air. Situations in which sounds of one or more of these classes can be elicited simultaneously from one and from two restrained animals are described.--From auth. summ.

McEwin, B. (Univ. Adelaide, South Australia.) CESTODES FROM MAMMALS. Rept. Ser., B.A.N.Z. Antarctic Res. Expedition, 6B(4): 75-90. 1957. [From abstr. in Helminthol. Abstr. 30(2), 1961.] WR 103: 34

Descriptions of 6 spp. found in aquatic mammals.

Mollestad, Sverre. (Fiskeridirektoratet, Bergen, Norway.) SELFANGSTEN, 1959. [THE SEAL CATCH, 1959.] Årsberetning vedkommende Norges Fiskerier 1959 (10): 1-18. 1960. [From Biol. Abstr. 36(11), 1961.] WR 103: 35

Sixty-seven vessels landed 12,512 gross tons (4,538 net tons) of seals in a total of 77 trips of Newfoundland, West Ice, Denmark Strait, North Ice, and East Ice. Total numbers of animals taken were 295,398, of which 256,971 were Greenland seals, 37,131 hooded seals, 975 big seals, 193 ring seals, and 128 polar bears. Walruses were protected.--From abstr. by R. P. Elliott.

Nagasaki, Fukuzo. ABUNDANCE OF PUPS ON THE PRIBILOFS ESTIMATED FROM TAG-RECOVERIES. Bull. Tokai Regional Fisheries Res. Lab. 28: 211-216. 1960. [From Biol. Abstr. 36(14), 1961.] WR 103: 35

With Japanese summary.

Nagasaki, Fukuzo. SOME ASPECTS IN THE DISTRIBUTION OF FUR-SEALS IN THE NORTH PACIFIC. Bull. Tokai Regional Fisheries Res. Lab. 28: 201-210. 1960. [From Biol. Abstr. 36(14), 1961.] WR 103: 35

With Japanese summary.

Nishiwaki, Masaharu, and Fukuzo Nagasaki. SEALS OF THE JAPANESE COASTAL WATERS. Mammalia (Paris) 24(3): 459-467. Sept. 1960. [From J. Mammal. 42 (2), 1961.] WR 103: 35

Norris, Kenneth S., John H. Prescott, Paul V. Asa-Dorian, and Paul Perkins. (Univ. Calif., Los Angeles 24.) AN EXPERIMENTAL DEMONSTRATION OF ECHO-LOCATION BEHAVIOR IN THE PORPOISE, TURSIOPS TRUNCATUS (MONTAGU). Biol. Bull. 120(2): 163-176, 4 figs. Apr. 1961. WR 103: 35

A method was devised whereby an Atlantic bottlenose porpoise could be blindfolded with soft latex suction cups. This method has allowed some analysis of the echo-location system of this animal, and should provide a tool for further study. The blindfolded animal was remarkably adept at obstacle avoidance and in the location of small food fragments.--From summ.

Scheffer, Victor B. (US F&WS, Seattle 15, Wash.) EARLY EMBRYOS OF THE NORTHERN FUR SEAL. Mammalia 24(3): 482-483, illus. 1960. [From Polar Record 10(68), 1961.] WR 103: 35

[Callorhinus ursinus.]

Scheffer, Victor B. (US F&WS, Seattle 15, Wash.) WEIGHTS OF ORGANS AND GLANDS IN THE NORTHERN FUR SEAL. Mammalia 24(3): 467-481. 1960. [From Polar Record 10(68), 1961.] WR 103: 35

[Callorhinus ursinus.]

Thorsteinson, Fredrik V., Richard W. Nelson, and Dexter F. Lall. (Bur. Commercial Fisheries, Juneau, Alaska.) EXPERIMENTAL HARVEST OF THE STELLAR SEA LION IN ALASKAN WATERS. US F&WS Spec. Sci. Rept.--Fisheries no. 371. iii + 15 p., 10 figs. Jan. 1961. WR 103: 35

During the summer of 1959, an experimental harvest of Stellar sea lions (Eumetopias jubata) was conducted in Alaska. During the expedition, 616 sea lions were killed of which ~64 were ultimately processed. The yield (200 tons of ground meat and 9 tons of whole livers) was packaged in 50-pound bags, frozen, and sold through commercial channels to fur farmers for feeding mink.--From auth. abstr.

Zemskii, V. A. [MATERIALS ON THE PROPAGATION BALAENOPTERA PHYSALUS IN THE ANTARCTIC.] Bull. Moscow Obshch. Ispyt. Prirody, Biol. 65(1): 17-27. Jan.-Feb. 1960. [From J. Mammal. 42(2), 1961.] WR 103: 35

"In Russian with English summary."

Zemsky, V. A. PREPARATIONS FROM EAR PLUGS OF BALEEN WHALES. Norsk Hvalfangst-Tidende (Norwegian Whaling Gazette) 49(9): 434-435. Sept. 1960. [From J. Mammal. 42(2), 1961.] WR 103: 35

"For age determination."

MAMMALS--MARINE--Continued

Zenkovich, B. A., editor. BIOLOGY AND HUNTING OF MARINE MAMMALS. Trudy Vsesiuznyi Nauchno-issledovatel'skii Inst. Morskogo Rybnogo Khoziaistva i Okeanografii (Moscow) 33: 1-218. 1958. [From J. Mammal. 42(2), 1961.] WR 103: 36

In Russian. Included articles: The whaling industry in Antarctica from 1931-55 and a consideration on the state of the supply; The distribution of whales in the Atlantic sector of Antarctica; Distribution of food supply and accumulation of whalebone whales in the Antarctic; The correlation between the observed quantity and the take of whales in the Antarctic fishery; The determination of the yellow marks in the flesh of the Antarctic fin whale; The method of determination of the yellow marks in the flesh in pregnancy and ovulation in the humpback whale; The growth of the newborn fin whale during the lactation period of nutrition; Morphological adaptations of newborn Antarctic fin whales; Fin whales covered with diatomaceous algae in the Antarctic; A comparison of the structure of an aquatic herd and land mammals.

MAMMALS--OTHER GROUPS

Dempster, J. K. (Fisheries & Wildl. Dept., Melbourne, Australia.) KANGAROOS / MANAGEMENT IN VICTORIAN AGRICULTURAL AREAS. J. Agr. 59(1): 45-52, 1 fig. 1961. WR 103: 36

The gray kangaroo causes a great deal of damage in agricultural areas in Victoria. The kangaroo is protected by law and the only method used to control them has been the issuance of permits allowing farmers to kill kangaroos in the areas where they are causing damage. The modifications which the permit system has undergone and the possibility of having an open hunting season on kangaroos are discussed.

Holmes, Ann C. V. (Ill. Nat. Hist. Survey, Urbana.) THAT STRANGE LITTLE BEAST THE OPOSSUM. Ill. Wildl. 16(3): 10-11, 4 figs. June 1961. WR 103: 36

A brief discussion is presented of the opossum's home range and dens, food habits, distribution, and its role as a game animal and furbearer. The opossum is susceptible to cold and this may be the limiting factor on the northward movement of the animal.

Mollison, B. (Wildl. Survey Sec., C.S.I.R.O., Tasmanian Regional Lab., Hobart.) PROGRESS REPORT ON THE ECOLOGY AND CONTROL OF MARSUPIALS IN THE FLORENTINE VALLEY. J. Australian Pulp & Paper Industry Tech. Assoc. 14(2): xxi-xxvii. Sept. 1960. WR 103: 36

Summary: Browzing damage to eucalypt (Eucalyptus regnans) seedlings in cut-over areas of the Florentine Valley region of southern Tasmania has necessitated investigation into poisoning control measures for marsupial populations involved. Two wallabies (Thylogale billardieri and Protemnodon rufogrisea) and the brush possum (Trichosurus vulpecula) have been established as the culprit species, and their distribution and abundance in the study area is discussed. The control method best suited to the area is by localized poisoning of affected coupes. The results of poisoning to date suggest that the wallabies will be more difficult to control, as they tend to re-invade poisoned areas more quickly than the possum. An ecological approach is planned for future research to determine the history of coupe invasion and reinvasion or survival after poisoning. The particular problems of difficult access to burnt coupes and the low recovery of poisoned carcases in dense undergrowth may be overcome by maintaining open bulldozer tracks when slash-falling, and by night observations of the poisoning techniques being evolved.

Morris, B. (Nottingham Univ., England.) SOME OBSERVATIONS ON THE BREEDING SEASON OF THE HEDGEHOG AND THE REARING AND HANDLING OF THE YOUNG. Proc. Zool. Soc. London 136(2): 201-206. Mar. 1961. WR 103: 36

Abstract: The breeding season of the hedgehog extends into late Aug. and early Sept., and lactation may continue very late into the year. The incidence of loss of embryos after implantation is low and is estimated at 3.3 per cent in the small sample recorded. The minimal duration of pregnancy in this species is 31-32 days, with a probable maximum duration of 39 days. Observations on the rearing of the young and on the handling of the young for experimental purposes are recorded.

BIRDS--GENERAL

Deignan, Herbert G. TYPE SPECIMENS OF BIRDS IN THE UNITED STATES NATIONAL MUSEUM. Smithsonian Inst., USNM, Bull. no. 221. x + 718 p. 1961. Available at $2.75 from Supt. Documents. WR 103: 37

Falla, R. A. OCEANIC BIRDS AS DISPERSAL AGENTS. Proc. Roy. Soc., Ser. B., 152(949): 655-659, illus. 1960. [From Polar Record 10(68), 1961.] WR 103: 37
Young petreis may leave the nest while bearing down, and may be important dispersal agents for seeds and invertebrates.

Gibet, L. A. [BIRDS OF PREY OF THE FOREST-STEPPE OF WESTERN SIBERIA, AND THE STEPPE AND SEMI-DESERT OF NORTHERN KAZAKHSTAN.] Bull. Moscow Obshch. Ispyt. Prirody (Biol.) 64(6): 45-62. 1959. [From Biol. Abstr. 36(13), 1961, from Referat. Zhur., Biol., 1960, no. 117278.] WR 103: 37
Translation. [Original in Russian with English summary.] Based on 7183 km of roadside censuses made during 1946-55 in which 4625 birds of prey of 24 spp. were tallied. The relative numbers of birds of prey in the different natural zones are compared. In the forest-steppe small falcons predominate, mainly Falco tinnunculus and F. vespertinus. In the small areas of pine forests in the steppe, the windhover predominates. In steppe areas without forests, the basic bird-of-prey population consists of the inhabitants of open spaces: steppe and meadow hawks.

Kellogg, Peter Paul. SOUND RECORDING AS AN AID TO BIRD STUDY. Atlantic Nat. 16(2): 85-92, 5 figs. Apr.-June 1961. WR 103: 37
The methods and techniques for getting good bird sound recordings are presented. The equipment used and related problems are discussed.

Leedy, Daniel L. (Branch Wildl. Res., US F&WS, Washington 25, D. C.) SOME FEDERAL CONTRIBUTIONS TO BIRD CONSERVATION DURING THE PERIOD 1885 TO 1960. Auk 78(2): 167-175. Apr. 1961. WR 103: 37
Incidental to a review of the contributions made to bird conservation by the federal government during the 75-year period, the past and present programs are outlined. Currently the Bureau of Sport Fisheries and Wildlife has a diverse bird conservation program including: crop depredation studies, bird banding, national wildlife refuges, federal aid in wildlife restoration, cooperative wildlife research units and their research program in bird disease, and the effects of pesticides on bird populations.

Marler, Peter, and Donald Isaac. (Univ. Calif., Berkeley.) SONG VARIATION IN A POPULATION OF MEXICAN JUNCOS. Wilson Bull. 73(2): 193-206, 6 figs. June 1961. WR 103: 37
The songs of 63 ♂ Mexican juncos from the same population were recorded and analyzed. Considerable variation was found in many characteristics of the birds' songs.

Murphy, Robert Cushman. OCEANIC BIRDS. Proc. Roy. Soc., Ser. B., 152(949): 642-654. 1960. [From Polar Record 10(68), 1961.] WR 103: 37
Discusses zonal distribution and movements of southern sea-birds and relationships and evolutionary processes of isolated populations.

Onno, S. ZUR ÖKOLOGIE DER LAPPENTAUCHER (PODICEPS CRISTATUS, GRISEIGENA UND AURITUS) IN ESTLAND. [ON THE BIOLOGY OF THE GREBES IN ESTLAND.] Proc. Intern. Ornithol. Congr. 12: 577-582. 1958 [1960]. [From Biol. Abstr. 36(12), 1961.] WR 103: 37
[In German.]

Sladen, W. J. L., and R. L. Penney. (Johns Hopkins Univ., Baltimore, Md.) PENGUIN FLIPPER-BANDS USED BY THE USARP BIRD-BANDING PROGRAM 1958-60. Bird Banding 31: 79-82, 1 fig. Apr. 1960. WR 103: 37
Includes a discussion of the different types of bands used on the emperor, Adelie, and chinstrap penguins.

Southern, William E. (Univ. Mich., Ann Arbor.) A BOTANICAL ANALYSIS OF KIRTLAND'S WARBLER NESTS. Wilson Bull. 73(2): 148-154, 1 fig. June 1961. WR 103: 38

The nests of 20 Kirtland's warblers were found to be made up of materials from 29 plant species. The nests were composed of 3 noticeably different layers. There was no indication that any one particular plant affected the distribution of the warblers.--From auth. summ.

Thorpe, W. H., and B. I. Lade. (Cambridge Univ., Cambridge, England.) THE SONGS OF SOME FAMILIES OF THE PASSERIFORMES. I. INTRODUCTION: THE ANALYSIS OF BIRD SONGS AND THEIR EXPRESSION IN GRAPHIC NOTATION. Ibis 103a(2): 231-245, 14 figs. Apr. 1961. WR 103: 38

A simplified and graphic notation has been worked out which consists of a series of conventional symbols useful in the analysis of the sound spectrograms of birds' songs. This is done without the loss of any information essential for the field student.--From auth. summ.

BIRDS--MORPHOLOGY, PHYSIOLOGY, BEHAVIOR, MIGRATION

Allen, Ted T. (Univ. Fla., Gainesville.) NOTES ON THE BREEDING BEHAVIOR OF THE ANHINGA. Wilson Bull. 73(2): 115-125 + 11 figs. on 1 pl. June 1961. WR 103: 38

The behavioral sequence of pair formation is described from observations of breeding birds during late winter and spring of 1959. Incubation is by both sexes. Territorial ♂♂ show some variability in defense behavior, but the reaction appears strongest in the presence of the ♀. Anhingas are generally tolerant of other species which are nesting within the colony.

Ash, J. S., P. Hope Jones, and R. Melville. THE CONTAMINATION OF BIRDS WITH POLLEN AND OTHER SUBSTANCES. Brit. Birds 54(3): 93-100. Mar. 1961. WR 103: 38

Samples were analyzed of pollen contaminants from migrant birds collected in France, Ireland, and England. Citrus pollen was the main constituent in most of the samples. Myrica pollen was predominate on chiffchaffs (Phylloscopus collybita). Other pollens included those of Acer, Pinus, Juniperus, Liliaceae, and Ericaceae. Tubiflorae and Ligulatae of the Compositae were also present. Birds may be contaminated by taking pollen in as food or by contacting pollen when seeking either nectar or insects attracted to blossoms. Presence of Myrica on chiffchaffs provides information on their migration routes.--From auth. summ.

Beer, James R. (Univ. Minn., St. Paul.) WINTER FEEDING PATTERNS IN THE HOUSE SPARROW. Auk 78(1): 63-71, 3 figs. Jan. 1961. WR 103: 38

Based upon 3,328 observations of house sparrows made between Nov. 1949 and Mar. 1950 at a feeding station. Typically, the birds started feeding at about sunrise and reached a morning peak soon thereafter. A second feeding peak was attained at about one hour before sunset. "At average daily temperatures of below -20°C, the major feeding peak took place early in the morning, with the birds starting to feed well before sunrise. At these colder temperatures there was little build-up in the afternoon, although individuals did not leave the station until well after sunset. Rain and wind caused a decrease in feeding activity."--From auth. summ.

Borror, Donald J. (Ohio State Univ., Columbus 10.) INTRASPECIFIC VARIATION IN PASSERINE BIRD SONGS. Wilson Bull. 73(1): 57-78, 5 figs. Mar. 1961. WR 103: 38

An outline of variation of bird song based on the analysis of tape recordings by a sound spectrograph. Individuals of some species have only one song pattern, others have two or more patterns--one lark sparrow had 58 patterns. Factors for and functions of the song variations are discussed.

Bouchner, M. DENNÍ AKTIVITA SÝKORY KOŇADRY (PARUS MAJOR) V DOBĚ HNÍZDĚNÍ. [DAILY ACTIVITY OF P. MAJOR IN THE NESTING PERIOD.] Práce Výzkum. Úst. Lesn. ČSR no. 20. p. 69-91, illus. 1960. [From Commonwealth Forestry Bur., Centralized Title Serv. Cards, 8 May 1961.] WR 103: 39

In Czech with Russian and German summaries. Seventeen references. Present data obtained by automatic recording apparatus on the number of flights made by parents to a nest-box containing 9 young, during the 19-day period between hatching and leaving the nest.--Courtesy/ Frank M. Johnson.

Cade, Tom J. ECOLOGY OF PEREGRINE AND GYRFALCON POPULATIONS IN ALASKA. Univ. Calif. Publ. Zool. 63(3): 151-290, illus. Univ. Calif. Press, Berkeley. 1960. $2.50. [From review in Science 132(3442), 1960.] WR 103: 39

The following topics are discussed: distribution, abundance, and breeding biology of the two species in Alaska; the nesting cliff as an "ecological magnet"; the importance of a strong pair bond; tradition as a factor linking generations to the same cliff; the significance of sexual dimorphism in falcons; and peregrine versus gyrfalcon competition. The gyrfalcon is the dominant competitor in Alaska because of its greater size and strength, and its early nesting habit gives it the opportunity to first settle on the available cliffs. The peregrine is numerically more successful over most of its Alaskan range because it readily adapts to changing climatic conditions, less exacting than the gyrfalcon in choice of nesting cliffs, has no difficulty in obtaining plenty of food in summer, and escapes the arctic winter by migration.--George Miksch Sutton.

Coulson, J. C. (Univ. Durham, England.) MOVEMENTS AND SEASONAL VARIATION IN MORTALITY OF SHAGS AND CORMORANTS RINGED ON THE FARNE ISLANDS, NORTHUMBERLAND. Brit. Birds 54(6): 225-235, 5 figs. June 1961. WR 103: 39

Several ecological differences between the two species and between age groups were determined from an analysis of the banding recoveries of 230 cormorants (Phalacrocorax carbo) and 127 shags (P. aristotelis) banded on the Farne Islands, Northumberland.--From auth. summ.

Coulson, J. C., and E. White. (Univ. Durham, England.) AN ANALYSIS OF THE FACTORS INFLUENCING THE CLUTCH SIZE OF THE KITTIWAKE. Proc. Zool. Soc. London 136(2): 207-217, 4 figs. Mar. 1961. WR 103: 39

Clutch size of the kittiwake is influenced by the previous breeding experience of the ♀ and also by the time of laying. Females breeding for the first time lay on the average smaller clutches. There is a correlation between the time of the onset of breeding in kittiwake colonies and the average clutch size. A progressive decrease in clutch size as the breeding season progresses may be wide-spread in both passerines and non-passerines and probably occurs only in species which do not normally have 2 broods in a single breeding season.--From auth. abstr.

Crowell, Kenneth Leland. REDUCED INTERSPECIFIC COMPETITION IN THE BIRDS OF BERMUDA. Ph.D. thesis, Univ. Pa. 56 p. 1961. [Long abstr. in Dissertation Abstr. 21(12), 1961.] WR 103: 39

Delvingt, W. LES DORTOIRS D'ETOURNEAUX STURNUS VULGARIS DE BRUXELLES. [THE ROOSTS OF THE STARLING (STURNUS VULGARIS) IN BRUSSELS.] Gerfaut 50: 19-39. 1960. [From Ibis 103a(1), 1961.] WR 103: 39

In French. A detailed study of the roosting habit of starlings in Brussels. Only trees and ivy were used; there was apparently no segregation of different populations as happens in London; and the roosts were occupied by territory-holding birds some time after pairing. Other comparisons with roosts in Germany, Holland, and the USA are drawn.

Drost, Rudolf. ÜBER DEN NÄCHTLICHEN VOGELZUG AUF HELGOLAND. [ON THE NIGHTLY BIRD PASSAGE FROM HELGOLAND.] Proc. Intern. Ornithol. Congr. 12: 178-192. 1958 [1960]. [From Biol. Abstr. 36(12), 1961.] WR 103: 39

[In German.]

Duncan, C. J. (Univ. Liverpool, Liverpool, England.) THE SENSE OF TASTE IN BIRDS. Ann. Appl. Biol. 48(2): 409-414, 2 figs. June 1960. WR 103: 40

The sense of taste in many birds is rudimentary or relatively unimportant. In preference tests feral pigeons rejected acids even at very low concentrations; were almost indifferent to sugars (glucose and sucrose); rejected quinine; and showed a slight preference to chlorides at the lower concentrations, but with increasing concentration a progressive rejection was found.

Egorov, O. V. [THE ECOLOGY OF THE YAKUTSK FALCON.] Zool. Zhur. 38: 112-122. 1959. [From Ibis 103a(1), 1961.] WR 103: 40

In Russian with English summary. Deals with Falco peregrinus harteri in Yakutsk, its migration, nesting (on rocks), and food habits.

Engels, William L. (Univ. N. C., Chapel Hill.) PHOTOPERIODISM AND THE ANNUAL TESTICULAR CYCLE OF THE BOBOLINK (DOLICHONYX ORYZIVOROUS), A TRANS-EQUATORIAL MIGRANT, AS COMPARED WITH TWO TEMPERATE ZONE MIGRANTS. Biol. Bull. 120(2): 140-147, 1 fig. Apr. 1961. WR 103: 40

"Bobolinks unlike typical Temperate Zone migrants, are able to overcome post-nuptial photorefractoriness on days of intermediate length, such as would be encountered during transequatorial migration, but...regrowth of the testes through the long days of the southern hemisphere summer proceeds at a rate much slower than that demonstrated by Temperate Zone migrants on similarly long days, and that full recrudescence is thus delayed, probably beyond the onset of northward migration." It is "suggested that as far as the photoperiodic mechanism is concerned bobolinks could establish a wintering population in the northern hemisphere; but juncos and white-throated sparrows could not extend their wintering range into the southern hemisphere without readjustment of this mechanism."--From summ.

Farner, Donald S., and Dominic L. Serventy. (Wash. State Univ., Pullman.) THE TIMING OF REPRODUCTION IN BIRDS IN THE ARID REGIONS OF AUSTRALIA. Anat. Record 137(3): 354. 1960. [From Biol. Abstr. 36(15), 1961.] WR 103: 40

Abstract.

Ficken, Millicent Sigler. BEHAVIOR OF THE AMERICAN REDSTART, SETOPHAGA RUTICILLA (LINNAEUS). Ph.D. thesis, Cornell Univ. 166 p. 1960. [From abstr. in Dissertation Abstr. 21(12), 1961.] WR 103: 40

This study is an analysis of maintenance activities, agonistic, and sexual behavior of the American redstart. Displays are analyzed in terms of causation, function, and biological significance.

Ficken, Robert William. BEHAVIOR OF THE COMMON GRACKLE, QUISCALUS QUISCULA (LINNAEUS). Ph.D. thesis, Cornell Univ. 95 p. 1960. [From Dissertation Abstr. 21(10), 1961.] WR 103: 40

Main objectives of the study were to describe the typical behavior patterns of the common grackle and to attempt an ethological analysis of the material.

Frith, H. J., and S. J. J. F. Davies. (C.S.I.R.O., Canberra, A.C.T., Australia.) BREEDING SEASON OF BIRDS IN SUBCOASTAL NORTHERN TERRITORY. Emu 61(part 2): 97-111. June 1961. WR 103: 40

The breeding season of birds in the coastal and near-coastal strip of the Northern Territory of Australia are analyzed. Tables are presented giving the species of birds and the months in which clutches were begun for each species. Forest-frequenting birds breed mainly during the wet season and water-birds in the early dry season. The main breeding of the raptores takes place in the middle of the dry season.

Galushin, V. M. (V. I. Lenin Moscow State Pedagogical Inst., USSR.) THE EFFECT OF AVIAN PREDATORS ON THE NUMBERS OF THEIR PREY. Doklady Akad. Nauk SSSR Biol. Sci. Sect. 132(1/6): 364-365. 1960. [From Biol. Abstr. 36(11), 1961.] WR 103: 40

Translated from Doklady Akad. Nauk SSSR/132(4): 936-938. 1960.

Goodwin, D. OBSERVATIONS ON AVADAVATS AND GOLDEN-BREASTED WAXBILLS. Avicult. Magazine 66: 174-199. 1960. [From Ibis 103a(2), 1961.] WR 103: 41
Detailed observations on inter-specific personal relationships, general breeding behavior, feeding and food-preferences, display, preening, parental behavior, and anting. Call-notes and song are also described.--J.B.N.

Gould, Patrick J. (Univ. Ariz., Tucson.) TERRITORIAL RELATIONSHIPS BETWEEN CARDINALS AND PYRRHULOXIAS. Condor 63(3): 246-256, 2 figs. May-June 1961. WR 103: 41
Territorial behavior and other aspects of the life of cardinals and the pyrrhuloxia in southern Ariz. are basically very similar. Their songs which serve the purpose of establishing and maintaining territories are homologous. The nesting cycle and habits are almost identical. The ability of the pyrrhuloxia to nest in open situations suggests a method for reducing competition between the two species. The territories of the birds are often coincident and not mutually exclusive which suggests that the difference in size and shape of the territory is a function of the local density. The considerable similarity between the 2 species in life history supports the hypothesis that they are congeneric.--From auth. summ.

Hailman, Jack P. (Duke Univ., Durham, N. C.) WHY DO GULL CHICKS PECK AT VISUALLY CONTRASTING SPOTS? A SUGGESTION CONCERNING SOCIAL LEARNING OF FOOD-DISCRIMINATION. Am. Nat. 95(883): 245-247. July-Aug. 1961. WR 103: 41
Laughing gull chicks pecked repeatedly at contrasting spots. When two or more chicks were placed in the same box, they often pecked at one another. The relative order of preference of pecking targets appeared to be spots on newsprint; sibling's bill tip; sibling's feet; and other objects. Pecking at sibling's bill tips may help to establish discriminatory feeding responses.

Happ, G. B. (Principia Coll., Elsah, Ill.) BEHAVIOR STUDIES OF THE NORTHERN FLICKER. Anat. Record 137(3): 363. 1960. [From Biol. Abstr. 36(11), 1961.] WR 103: 41
Abstract.

Hardy, Joe W. LOCATION AND ECOLOGICAL EXAMINATION OF THE 1960-61 WINTER BLACKBIRD ROOST IN DISMAL SWAMP. Va. Acad. Sci. Meeting, Lexington, 12 May 1961. Mimeo., Va. Coop. Wildl. Res. Unit Release no. 61-1. 3 p. 1961. WR 103: 41

Hartman, Frank A., and Katharine A. Brownell. (Ohio State Univ., Columbus.) ADRENAL AND THYROID WEIGHTS IN BIRDS. Auk 78(3): 397-422, 1 fig. July 1961. WR 103: 41
Body weights and percentage adrenal and thyroid weights are recorded for 249 species of birds in 49 families collected in Panama. The adrenals were larger than the thyroids in 176 species, while the reverse was true in 42 species. When adrenal weights are plotted against the body weight, the values of birds weighing 200 grams or less tend to lie near a straight line, while larger birds show a great divergence. When the thyroid weights are plotted against those of the body weight, the general trend is a straight line; but, unlike the adrenals, there was a generally greater divergence, small birds showing as much divergence as large ones.--From auth. summ.

Henty, C. J. FURTHER OBSERVATIONS ON MIGRATION IN SOUTHWEST IBERIA. Ibis 103a(1): 28-36, 1 fig. Jan. 1961. WR 103: 41
Details are given of migration during Aug.-Sept. 1958 in southwest Iberia. No "rushes" of night migrants were encountered and an overall broad front movement probably occurs. Hirundines and raptors passed through daily only at one station. Migration is discussed in relation to local and general weather conditions.--From auth. summ.

Heyder, R. ZUR AUFNAHME VON MINERALSALZEN DURCH VÖGEL. [THE UTILIZATION OF MINERAL SALTS BY BIRDS.] Beitr. Vogelk. 7: 1-6. 1960. [From Auk 78(1), 1961.] WR 103: 41
"Comments on eating of salt by birds."--E.E.

Howell, Thomas R., and George A. Bartholomew. (Univ. Calif., Los Angeles.) TEMPERATURE REGULATION IN LAYSAN AND BLACK-FOOTED ALBATROSSES. Condor 63(3): 185-197, 8 figs. May-June 1961. WR 103: 42

Temperatures of eggs, chicks, juveniles, and adults of Laysan albatross (Diomedea immutabilis) and black-footed albatross were measured under a variety of environmental conditions on Midway Island and the findings are presented. The climate of Midway Island is usually mild and the birds are not exposed to severe cold stress. The breeding cycle is timed so that the young birds are well grown before the onset of summer heat. Physiological and behavioral adaptations to heat stress and their relation to the ecology of the 2 species are discussed.--From auth. summ.

Ingram, Collingwood. CAMOUFLAGE IN NESTLING BIRDS. Proc. Intern. Ornithol. Congr. 12: 332-342, illus. 1958 [1960]. [From Biol. Abstr. 36(13), 1961.] WR 103: 42

Irving, Laurence. (Arctic Res. Center, P. O. Box 960, Anchorage, Alaska.) THE MIGRATION OF LAPLAND LONGSPURS TO ALASKA. Auk 78(3): 327-342, 1 fig. July 1961. WR 103: 42

During a ten-year period, great numbers of longspurs have been observed in May migrating north through Anaktuvuk Pass. Similar migrations proceed through other interior valleys of the Brooks Range taking vast numbers of longspurs toward the arctic tundra. South of the Alaska Range and on the Aleutian Islands, arrivals are so early that these regions cannot be settled by migrants seen in the Yukon territory. The northward advance of longspurs through Alaska is slow, but it increases as the northward component of migration diminishes and the westward component increases.--From auth. summ.

Isenbügel, E. HEIMFINDVERMÖGEN EINES HAUSSPERLINGS (PASSER DOMESTICUS). [HOMING IN THE HOUSE SPARROW (PASSER DOMESTICUS).] Ornithol. Mitt. (Göttingen) 12: 138. 1960. [From Ibis 103a(1), 1961.] WR 103: 42

Observations on a house sparrow that returned to a food source five times after being transported distances up to 15 km. The house sparrow is usually considered a very poor homer.

Johnston, Richard F. (Univ. Kansas, Lawrence.) DISPERSAL AND TERRITORIALITY IN BIRDS. Anat. Record 137(3): 368. 1960. [From Biol. Abstr. 36(11), 1961.] WR 103: 42

Abstract.

Kanai, I. [BREEDING ECOLOGY OF THE HOUSE SWALLOW, HIRUNDO RUSTICA.] Misc. Rept. Yamashina Inst. Ornithol. & Zool. 2(14): 30-40. 1960. [From Auk 78(1), 1961.] WR 103: 42

(In Japanese with English summary.) "Figures for the Tokyo region based on a three-year study of several hundred nests (dates of arrival, building, laying, hatching and fledging, incubation period, clutch size, brood size, per cent hatching and fledging, growth of young, banding results)."--K.C.P.

Kendeigh, S. Charles. (Univ. Ill., Champaign.) ENERGY OF BIRDS CONSERVED BY ROOSTING IN CAVITIES. Wilson Bull. 73(2): 140-147, 4 figs. June 1961. WR 103: 42

At temperatures below 24.7 C, the temperature inside a box cavity used for overnight roosting by a sparrow was higher than that outside. The difference between temperatures inside and outside of the box increased with decreasing temperature. The energy conserved by roosting in the box varies from zero at 24.7 C to 13.4% at -30 C.--From auth. concl.

King, James R. (Wash. State Univ., Pullman.) ON THE REGULATION OF VERNAL PREMIGRATORY FATTENING IN THE WHITE-CROWNED SPARROW. Physiol. Zoöl. 34(2): 145-157, 5 figs. Apr. 1961. WR 103: 42

Fat deposition closely resembling that of the vernal premigratory period was experimentally induced in ♂ white-crowned sparrows by manipulation of the daily photoperiod. Measurements were made of the energy metabolism of the birds, their body weight, molt, and motor activity. "The results of the experiments are interpreted as indicating that light energy directly influences the metabolic status of the birds, as distinguished from the permissive influence of increased

feeding time, which appears to be insignificant. This conforms with inferences derived from the study of the natural populations of Z. l. gambelii. Increase in the duration of the daily photoperiod appears to be the primary timer for the control of premigratory fat deposition in the spring. It is suggested that light may affect hypothalamic feeding centers directly via the optic tracts and/or indirectly via the metabolic and trophic hormones of the adenohypophysis." --From summ.

Klopfer, Peter H., and R. H. MacArthur. (Duke Univ., Durham, N. C.) ON THE CAUSES OF TROPICAL SPECIES DIVERSITY: NICHE OVERLAP. Am. Nat. 95(883): 223-226, 1 fig. July-Aug. 1961. WR 103: 43

The major factor causing the tropical increase in numbers of bird species is believed to be an increase in the similarity of coexisting species reflected in a reduced "character displacement." This implies a reduction in the size of the species niche.--From auth. summ.

Knorr, Owen N. (Univ. Colo., Boulder.) THE GEOGRAPHICAL AND ECOLOGICAL DISTRIBUTION OF THE BLACK SWIFT IN COLORADO. Wilson Bull. 73(2): 155-170, 2 figs. June 1961. WR 103: 43

Twenty-seven active breeding colonies of black swifts were located during a 1949-58 study in the Colo. mountains. Five physical ecological factors were found in all the colonies: the presence of water, "high relief," inaccessibility to terrestrial marauders, darkness, and the lack of flyway obstructions in the vicinity of the nest.--From auth. summ.

Koffán, K. OBSERVATIONS ON THE NESTING OF THE WOODLARK (LULLULA ARBOREA L.). Acta Zool. Acad. Sci. Hungary 5: 371-412. 1960. [From review in Auk 78(1), 1961.] WR 103: 43

"The following topics are considered: nest sites, concealment of nests, nesting in cultivated areas, direction in which nests face (mostly north), elevation, nest-site selection (by the male), territory, relationship of nest hollows to soil properties, the number of hollows and their excavation, removal of excavated material (including experiments with empty snail shells), nest building, nesting period, effects of weather, associations with other birds. A well-prepared paper (in English) with 24 references cited."--F.J.T.

Korol'kova, G. E. BASIC OUTLINES OF THE ACTIVITY OF WOODPECKERS IN THE OAK GROVES OF THE TELLERMANN MASSIF AND THE STAROBELSK STEPPES. Akad. Nauk SSSR, Inst. Les. Trudy 48: 7-58. 1960. [Listed in Bibliog. Agr. 25(6), 1961.] WR 103: 43

In Russian.

Laskey, Amelia R. (1521 Graybar Lane, Nashville, Tenn.) BIRD MIGRATION CASUALTIES AND WEATHER CONDITIONS AUTUMNS 1958-59-60. Migrant 31(4): 62-65. Dec. 1960. WR 103: 43

The heaviest kills at 2 Tenn. television towers were found to coincide with certain weather conditions: the approach and passing of a cold front with northerly winds, usually overcast skies, and often some precipitation. Kill peaks were reached on Sept. 27 and 28 when 861 and 1597 birds were killed. The total number of birds killed each year and the period in which the kill took place are given. A casualty list is also given for the three years, with a complete analysis of the kill in 1960.

Løppenthin, Bernt. THE PRIMEVAL IMMIGRATION OF SOME FOREST AND OPEN-LAND BIRDS INTO DENMARK. Proc. Intern. Ornithol. Congr. 12: 459-463. 1958 [1960]. [From Biol. Abstr. 36(12), 1961.] WR 103: 43

Marler, P. SPECIFIC DISTINCTIVENESS IN THE COMMUNICATION SIGNALS OF BIRDS. Behaviour 11: 13-39. 1957. [From Auk 78(2), 1961.] WR 103: 43

Releasers involved in reproductive isolation tend to be divergent between closely related sympatric species (e.g., pair-formation displays). Releasers of sympatric species with functions that discourage specific distinctiveness often converge on common types (e.g., alarm calls).

Mayfield, Harold F. (River Road, RFD, Waterville, Ohio.) VESTIGES OF A PROPRIETARY INTEREST IN NESTS BY THE BROWN-HEADED COWBIRD PARASITIZING THE KIRTLAND'S WARBLER. Auk 78(2): 162-166. Apr. 1961. WR 103: 44

Summary: The brown-headed cowbird still retains vestiges of a nesting drive shown in ways suggesting a proprietary interest in the Kirtland's warbler nests it parasitizes, as follows: (1) watching nest building intently; (2) looking into the nest at intervals; (3) visiting the nest repeatedly to remove eggs; (4) removing eggs only from the nests it is using; (5) removing only the host's eggs and not its own; (6) never emptying the nest completely; and (7) destroying several eggs in a crowded nest.

McCabe, Robert A. (Univ. Wis., Madison.) THE SELECTION OF COLORED NEST BOXES BY HOUSE WRENS. Condor 63(4): 322-329, 1 fig. July-Aug. 1961. WR 103: 44

For 11 years, house wrens (Troglodytes aedon) were given a choice of red, yellow, blue, white, and green nesting boxes. The red and green were the most preferred--and white the least. Wrens nesting for the second time within a year in a battery tended to re-use the same nest box. Three simultaneous nesting efforts within a battery were influenced by position rather than color, as the two nests were in each case adjacent to each other.--From auth. summ.

Meanley, Brooke. (Patuxent Wildl. Res. Center, Laurel, Md.) LATE-SUMMER FOOD OF RED-WINGED BLACKBIRD IN A FRESH TIDAL-RIVER MARSH. Wilson Bull. 73(1): 36-40, 1 fig. Mar. 1961. WR 103: 44

The stomach contents of 130 birds collected in wild rice beds of the Patuxent River in southern Md. were analyzed. Seeds of marsh plants formed the bulk of the food of the redwings collected. Dotted smartweed, wild rice, and Walter's millet were the most important food plants. Corn was the fourth most important food item occurring in 35 stomachs.--From auth. summ.

Merkel, F. W. (Univ. Frankfurt, Main, Germany.) ZUR PHYSIOLOGIE DER ZUGUNRUHE NÄCHTLICH ZIEHENDER KLEINVÖGEL: EINE ARBEITSHYPOTHESE. [ON THE PHYSIOLOGY OF MIGRATORY RESTLESSNESS OF NOCTURNALLY MIGRATING SMALL BIRDS: A WORKING HYPOTHESIS.] Proc. Intern. Ornithol. Congr. 12: 507-512. 1958 [1960]. [From Biol. Abstr. 36(14), 1961.] WR 103: 44

[In German.]

Mewaldt, L. R., and R. G. Rose. (San Jose State Coll., San Jose, Calif.) ORIENTATION OF MIGRATORY RESTLESSNESS IN THE WHITE-CROWNED SPARROW. Science 131(3393): 105-106, 1 fig. 8 Jan. 1960. WR 103: 44

Abstract: Individuals of 2 migratory races of white-crowned sparrows Zonotrichia leucophrys caged under an open sky showed a pronounced orientation in their night restlessness during normal periods of migration for the species. In August and September 1958 most birds showed a southerly orientation at night; daytime activity was random to somewhat northerly. In April and May 1959 most birds showed a strong northerly orientation at night; daytime activity was random to somewhat southerly.

Meyerriecks, Andrew J. COMPARATIVE BREEDING BEHAVIOR OF FOUR SPECIES OF NORTH AMERICAN HERONS. Nuttal Ornithol. Club no. 2. viii + 158 p., 39 figs., 15 pls. 1960. Paper, $2.00; cloth, $3.00 from Mass. Audubon Soc., Drumlin Farm, South Lincoln, Mass. [From Wilson Bull. 73(1), 1961.] WR 103: 44

This interesting work is concerned primarily with the hostile and sexual displays of the green heron (Butorides virescens) and the interactions of birds showing these displays during pair formation. Various maintenance activities are also described as a basis for understanding the origin of the sexual and hostile displays. Pairing behavior of the green heron is thoroughly documented and much information is condensed into "ethograms." Comparative information on pairing behavior is given in somewhat less detail for the great blue and great white herons (Ardea herodias), the reddish egret (Dichromanassa rufescens), and the snowy egret (Leucophoyx thula). In addition, the presence or absence of 61 behavior patterns found in herons is shown in chart form for all North American herons except the bitterns. One of the real values of this chart is its exposure of the many gaps in the knowledge of our common herons. The primary contribution of this paper is the description of displays and pairing behavior of the green heron based on some 3,000 hours of observation. The

advertising call of the male green heron exhibits geographical variation in pitch and pattern. The section on the green heron is firmly based on fact, while the section on the other three species is based on relatively few observations. The drawings illustrating displays are adequate but uninspired, and the photographs show maintenance activities rather than displays.--From review by Richard L. Zusi.

Moynihan, M. (Canal Zone Biol. Area, Panama Canal Zone.) SOME ADAPTATIONS WHICH HELP TO PROMOTE GREGARIOUSNESS. Proc. Intern. Ornithol. Congr. 12: 523-541, illus. 1958 [1960]. [Long abstr. in Biol. Abstr. 36(13), 1961.] WR 103: 45

Mueller, Helmut C., and Daniel D. Berger. (Univ. Wis., Madison.) WEATHER AND FALL MIGRATION OF HAWKS AT CEDAR GROVE, WISCONSIN. Wilson Bull. 73(2): 171-192, 3 figs. June 1961. WR 103: 45

Daily counts of autumn migrating hawks were made on 256 days during 1952-7. More than 92% of the migration occurred on 84 days characterized by westerly winds and the recent passage of a cold front.--From auth. summ.

Orians, Gordon H. (Univ. Wash., Seattle.) SOCIAL STIMULATION WITHIN BLACKBIRD COLONIES. Condor 63(4): 330-337. July-Aug. 1961. WR 103: 45

Variations in timing and synchrony in Calif. redwings were correlated with the nature of the marsh and its surrounding vegetation and not with size of the breeding population. In the Calif. tricolored blackbird, time of breeding, synchrony, and clutch size were also found to be independent of colony size. Nesting success in both species could not be directly evaluated with respect to colony size. Group stimulation may operate in nomadic flocks prior to the initiation of breeding. The social stimulation theory currently fails to consider the selective significance of proposed changes in timing and synchrony and neglects important aspects of the ecology of the environment which may vary temporally and spatially.--From auth. summ.

Peiponen, V. FARBENSEHEN BEI DEN VOGËLN UND DIE ZAPFENÖLKUGELN. [COLOR-VISION OF BIRDS AND THE OIL-DROPLETS OF THE RETINA.] Ornis Fennica 36: 88-94. 1959. [From Ibis 103a(1), 1961.] WR 103: 45

[In German.] In an earlier paper (Arch. Soc. 'Vanamo' 12: 146-155. 1958) the author showed that robins and bluethroats, when offered colored objects beside the nest, carried away some colors before others. Robins reacted first to orange. Bluethroats to blue. In the present paper it is shown that these 2 spp. and the yellow wagtails differ in the proportions of red, yellow, and greenish oil-droplets in the central part of the retina corresponding to the preferred colors. The author then points to the resemblance between the color preferred by each species, and its plumage.--J.M.C.

Perdeck, A. C. OBSERVATIONS ON THE REPRODUCTIVE BEHAVIOUR OF THE GREAT SKUA OR BONXIE, STERCORARIUS SKUA SKUA (BRUNN.) IN SHETLAND. Ardea 48: 111-136. 1960. [From Ibis 103a(2), 1961.] WR 103: 45

A contribution to the comparative ethology of Laridae, with descriptions for comparison with what is known of the behavior of Larus. Postures and many aspects of reproductive behavior are discussed.

Pesenti, Pier Guglielmo. LES ROUTES DE MIGRATION DE QUELQUES OISEAUX D'EUROPE ET L'OPPORTUNITÉ DE COORDONNER L'OEUVRE DES NOMBREUSES STATIONS DE BAGUAGE. [MIGRATION ROUTES OF SOME EUROPEAN BIRDS AND THE OPPORTUNITY TO COORDINATE THE WORK OF THE COUNTING STATIONS OF BAGUAGE.] Proc. Intern. Ornithol. Congr. 12: 598-603. 1958 [1960]. [From Biol. Abstr. 36(12), 1961.] WR 103: 45

[In French.]

Pettingill, Olin Sewall, Jr. (Univ. Mich. Biol. Sta., Pellston.) THE EFFECTS OF CLIMATE AND WEATHER ON THE BIRDS OF THE FALKLAND ISLANDS. Proc. Intern. Ornithol. Congr. 12: 604-614. 1958 [1960]. [From Biol. Abstr. 36(11), 1961.] WR 103: 46

The Falkland Islands have a cool, remarkably equable climate the year round, with persistently strong, westerly winds. These peculiarities of climate and weather have pronounced effects on the 51 native species of breeding birds. Because the climate is equable, most species--except sea birds--have a long breeding season. The variety and populations of land birds are small, owing to the limitations imposed by the severe climate and winds on vegetational cover and food supply. Other than sea birds, few if any species migrate from the Falklands, since the climate is not sufficiently severe to force their exodus and since strong westerly winds would restrain their exodus, should it be attempted. A variety of species have small clutch-sizes, presumably the result of a low food supply. The majority of passerine species are larger in size than representatives of the same species on the adjacent South American mainland. This development is considered advantageous to birds in a severe climate. Winds have both favorable and unfavorable effects on certain habits of birds.--Auth. summ.

Preuss, N. O. GROUND-SPEED AND AIR-SPEED ACCORDING TO FLOCK-SIZE IN MIGRATING BIRDS. Dansk Ornithol. Foren. Tidsskr. 54: 136-143. 1960. [From Ibis 103a (2), 1961.] WR 103: 46

Data obtained on the speed of low flying flocks of oystercatchers (Haematopus ostralegus) indicates that this is not affected by the size of the flock.--M.J.A.

Proescholdt, Beth. WEATHER AND EARLY SPRING MIGRATION IN IOWA. Wilson Bull. 73(1): 41-45. Mar. 1961. WR 103: 46

The weather associated with the northward migration in Mar. 1959 was that of the western edge of an area of high pressure and the warm sector of a low-pressure system. The reverse migration followed weather associated with the eastern edge of a high-pressure area with a cold front and northerly winds, and occurred just before a severe storm from the southwest entered the area.--From auth. summ.

Rendahl, Hialmar. DIE ZUGVERHÄLTNISSE DER SCHWEDISCHEN RABENVÖGEL. MIT BERÜCKSICHTIGUNG DER ERGEBNISSE VON DEN FINNISCHEN UND NORWEGISCHEN BRUTGEBIETEN. [MIGRATION CONDITIONS OF THE SWEDISH CORVIDAE. WITH REVIEW OF THE DATA FROM THE FINNISH AND NORWEGIAN BREEDING TERRITORIES.] Arkiv Zool. 12(5/6): 421-510, maps. 1961. [From Biol. Abstr. 36(15), 1961.] WR 103: 46

In German. The first paper of a series covering the following species which breed in Sweden: Corvus corone cornix, C. frugilegus, C. corax, Coloeus monedula, Pica pica, Nucifraga c. caryocatactes, Garrulus glandarius, and Cractes infaustus. Observations on migration, based on reports of recoveries of ringed birds, are discussed in detail, with many maps. Data on recoveries are listed for each species with discussions of age of birds, etc. Data are also given for birds breeding in Finland and Norway.--A. K. Winner.

Rendahl, Hialmar. DIE ZUGVERHÄLTNISSE SCHWEDISCHER DROSSELN. MIT BERÜCKSICHTIGUNG DER ERGEBNISSE VON DEN FINNISCHEN UND NORWEGISCHEN BERINGUNGEN. [THE MIGRATION CONDITIONS OF THE SWEDISH TURDIDAE. WITH REVIEW OF THE DATA FROM THOSE RINGED IN FINLAND AND NORWAY.] Arkiv Zool. 13(1): 1-71, maps. 1961. [From Biol. Abstr. 36(15), 1961.] WR 103: 46

In German. Detailed discussions of migration pattern, with maps and lists of recoveries of ringed birds, are given for Turdus philomelos, T. musicus, T. torquatus, T. viscivorus, T. merula, and T. pilaris. Comparisons are made between patterns of different species.--A. K. Winner.

Ripley, S. Dillon, (Yale Univ., New Haven, Conn.) AGGRESSIVE NEGLECT AS A FACTOR IN INTERSPECIFIC COMPETITION IN BIRDS. Auk 78(3): 366-371, 1 fig. July 1961. WR 103: 46

Field observations in the Moluccan Islands of eastern Indonesia indicate that the dominant, more aggressive species maintains a numerical ratio to a partially competing species with which it is sympatric by its very aggression and consequent reduction in brood size or nesting success.

Sauer, Franz, and Eleonore Sauer. (Univ. Wis., Madison.) ORIENTATION OF NOCTURNAL BIRD MIGRANTS BY THE STARS. Proc. Intern. Ornithol. Congr. 12: 645-648. 1958 [1960]. [From Biol. Abstr. 36(13), 1961.] WR 103: 47

Schaller, George B., and John T. Emlen, Jr. (Univ. Wis., Madison.) THE DEVELOPMENT OF VISUAL DISCRIMINATION PATTERNS IN THE CROUCHING REACTIONS OF NESTLING GRACKLES. Auk 78(2): 125-137, 3 figs. Apr. 1961. WR 103: 47

Nestlings from 21 common grackle nests showed crouching (responses) to mechanical stimuli well before the development of pattern vision, but did not crouch to visual stimuli until 2 or 3 days after pattern vision had been acquired. Experimental withdrawal of nestlings from the nest for a period of time delayed the acquisition of crouching response to visual models for a comparable time length. Blindfolding the birds postponed the crouching at the onset of visual models. Crouching responses are given to visual stimuli only after a period of visual learning has provided a basis for discriminating between the rewarding parent and other objects.--From auth. summ.

Schelde, O. [THE MIGRATION OF DANISH SPARROW-HAWKS (ACCIPITER NISUS (L.)).] Dansk Ornithol. Foren. Tidsskr. 54: 88-102. 1960. [From Ibis 103a(2), 1961.] WR 103: 47

In Danish with English summary. Based on 147 recoveries from more than 1000 banded birds. No difference could be shown between the migration of ♂♂ and ♀♀; however, the younger birds tend to spend the winter further south. Details of mortality and average age are given.--M.J.A.

Simmons, K. E. L. PROBLEMS OF HEAD-SCRATCHING IN BIRDS. Ibis 103a(1): 37-49. Jan. 1961. WR 103: 47

Forms of head-scratching are described and classified. Indirect-scratching differs from the direct chiefly in that it involves the positive movements of lowering one wing and bringing the foot up over it. Both methods of scratching exist on two main levels; basic-scratching as a reflex-like response to a stimulus and extended-scratching for feather-maintenance. The possible evolutionary trends in head-scratching are discussed. The scratching movements of a number of species are described and discussed, and a number of new records are given in the appendix.--From auth. summ.

Skutch, Alexander F. (San Isidro del General, Costa Rica.) THE NEST AS A DORMITORY. Ibis 103a(1): 50-70. Jan. 1961. WR 103: 47

Generally, only birds that breed in roofed nests, or in nests built in enclosed spaces, sleep in their nests when not incubating young. The evolution of the nest as a dormitory consists of the following steps: (1) sleeping in the covered breeding nest before the eggs are laid; (2) leading the fledglings to sleep in the nest they have just left; (3) constructing special dormitories not intended for eggs; and (4) lodging with their parents long after the young have become self-supporting. The dormitory habit is best developed in mild climates where the birds are permanent residents.--From auth. summ.

Skutch, Alexander F. (San Isidro del General, Costa Rica.) HELPERS AMONG BIRDS. Condor 63(3): 198-226. May-June 1961. WR 103: 47

A "helper" is a bird that assists in the nesting of an individual other than its mate or feeds or otherwise attends a bird that is neither its mate nor dependent offspring. Aside from giving warning at the approach of danger, the most common mode of helpfulness is in feeding. Intraspecific helpers are more numerous in species and individuals and occur more regularly than interspecific helpers. Examples of several classes of helpers are given and the conditions which favor their occurrence are discussed. Helpers point to the existence of much unused reproductive potential in birds. Brief accounts of the activities of helpers in more than 130 species are given in an annotated list.

Snow, Barbara K. (Simla, Arima Valley, Trinidad, West Indies.) NOTES ON THE BEHAVIOR OF THREE COTINGIDAE. Auk 78(2): 150-161, 3 figs. Apr. 1961. WR 103: 47

Field notes are presented on the calls and behavior of the white bellbird Procnias alba, the greenheart bird Lipaugus cineraceus, and the calfbird Perisocephalus tricolor. The calls of the male white bellbird and greenheart

bird are described. The male white bellbird called 78% of the time he was under observation. The communal display of the calfbird includes a loud synchronized calling by couples perched side by side. The birds use special display branches from which they clear the twigs and leaves.--From auth. summ.

Snow, D. W. (N. Y. Zool. Soc., N. Y. 60.) THE NATURAL HISTORY OF THE OILBIRD STEATORNIS CARIPENSIS, IN TRINIDAD, W. I. PART 1. GENERAL BEHAVIOR AND BREEDING HABITS. Zoologica 46(1-4): 27-48, 6 figs. 28 Apr. 1961. WR 103: 48

Oilbirds are gregarious cave-dwelling birds. They spend all day in caves and fly out at night to feed on the fruits of forest trees. Sight is well developed and is used whenever possible. The sonar method of orientation is used only when there is not enough light. The oilbird's peculiar stance, daily routine, and social behavior are described. A description is also given of the nest, eggs, and young.

Stewart, Hugh C. B. "THOSE LONDON STARLINGS". Victorian Nat. 77(9): 256-257. 1961. [From Biol. Abstr. 36(14), 1961.] WR 103: 48

A note on the acquisition of a new behavioral pattern in the starling.--B. A. Tryxell.

Stokes, Allen W. (Utah State Univ., Logan.) THE CAUSATION OF AGONISTIC AND SEXUAL BEHAVIOR IN THE CHUKAR PARTRIDGE (ALECTORIS GRAECA). Anat. Record 137 (3): 395-396. 1960. [From Biol. Abstr. 36(11), 1961.] WR 103: 48

Abstract.

Sulkava, Seppo. MUUTTOHAUKAN RAVINNOSTA. [ON THE FOOD HABITS OF THE PEREGRINE FALCON.] Suomen Riista 13: 33-39, 4 figs. 1959. WR 103: 48

In Finnish with English summary on separate mimeo. sheet. The material from 33 nests contained 633 prey individuals of which 206 were fresh and 425 old specimens. The estimation of the food habits of the peregrine is based only on the fresh material. Nearly one-third (30.1%) of the food consisted of small birds. Small waders made up 28.6%, and gulls and terns 18.4%. The percentage of waterfowl and corvids was 8-9%, and gallinaceous birds 4%. The amount of prey taken by the peregrine is directly correlated with the abundance of the prey species.--From auth. summ.

Swinebroad, J. A REVIEW OF SOME PROBLEMS IN THE STUDY OF BIRD MIGRATION. Ohio J. Sci. 60: 174-182. 1960. [From Auk 78(1), 1961.] WR 103: 48

"The use of influx and departure data to help answer some problems arising from a critical approach to migration studies in the field."--H.C.S.

Teiro, Heikki J. HAVAINTOJA VIIRUPÖLLÖN PESIMÄÄJAN RAVINNOSTA JA KÄYTTÄYTYMISESTÄ. [OBSERVATIONS ON THE BEHAVIOUR AND FOOD HABITS OF THE URAL OWL DURING THE NESTING PERIOD.] Suomen Riista 13: 93-105, 5 figs. 1959. WR 103: 48

In Finnish with English summary on separate mimeo. sheet. From May to Aug. 1959, a total of 59 prey individuals was collected from the nest of an Ural owl. Of these, 68% were small mammals (mainly Arvicola terrestris), 15% various passerine birds, 7% frogs, 5% insects, 3% gallinaceous birds, and 2% game mammals.--From auth. summ.

Thorpe, W. H., and B. I. Lade. (Cambridge Univ., Cambridge, England.) THE SONGS OF SOME FAMILIES OF THE PASSERIFORMES. II. THE SONGS OF THE BUNTINGS (EMBERIZIDAE). Ibis 103a(2): 246-259, 24 figs. Apr. 1961. WR 103: 48

The songs of the Emberizidae are discussed. Recordings of at least one species of 18 of the 21 genera were analyzed by means of the sonograph. The song characteristics of the birds and their possible use in the taxonomy of the family are discussed.

Tinbergen, N. EINIGE GEDANDEN ÜBER BESCHWICHTIGUNGSGEBÄRDEN. [SOME OBSERVATIONS ON APPEASEMENT DISPLAYS.] Z. Tierpsychol. 16: 651-665. 1959. [From Ibis 103a(2), 1961.] WR 103: 49

In German with English summary. The methods by which the functions and causation of displays can be studied are discussed and illustrated with examples mainly from gulls and terns. Agonistic displays and appeasement displays are compared. Pair formation ceremonies often consist of what appears to be one or two threat displays followed by an appeasement display. Though these displays are ritualized in this new context, traces of the original agonistic motivation are usually discernible. Four types of appeasement display are described and it is concluded that the restricted possibilities of withdrawing the head must have led to many convergences in different groups.

Tunmore, B. G. A CONTRIBUTION TO THE THEORY OF BIRD NAVIGATION. Proc. Intern. Ornithol. Congr. 12: 718-723, maps. 1958 [1960]. [From Biol. Abstr. 36(13), 1961.] WR 103: 49

Ulfstrand, Staffan. (Univ. Lund, Sweden.) SOME ASPECTS ON THE DIRECTING AND RELEASING INFLUENCE OF WIND CONDITIONS ON VISIBLE BIRD MIGRATION. Proc. Intern. Ornithol. Congr. 12: 730-736. 1958 [1960]. [From Biol. Abstr. 36 (13), 1961.] WR 103: 49

von Haartman, L. THE ORTSTREUE OF THE PIED FLYCATCHER. Proc. Intern. Ornithol. Congr. 12: 266-273. 1960. [From Ibis 103a(2), 1961.] WR 103: 49

Three northern populations of Ficedula hypoleuca have much lower return ratios for adult ♀♀, nestling ♀♀ and, probably, young ♂♂ than the corresponding ratios in a number of west, central, and eastern populations. It is suggested that there is a general geographic trend; that in the northern populations there are ♀♀ which tend to return and ♀♀ which do not, and that the latter are rare in southern populations compared with the northern. The returns for adult ♂♂ are similar in all areas.--C.M.P.

Wagner, H. O. DIE EINWANDERUNG DES HAUSSPERLINGS IN MEXIKO. [THE IMMIGRATION OF THE ENGLISH SPARROW INTO MEXICO.] Z. Tierpsychol. 16: 584-592. 1959. [From Auk 78(1), 1961.] WR 103: 49

The simultaneous immigration of the English sparrow into northeast Mexico and along the Pacific coast is traced from 1910. Along the Pacific coast, the birds advanced southward at the rate of about 200 km a year. Environmental influences stopped the advances in the region of the Gulf and considerably impeded it in the uplands. The southern part of the Gulf coast is inhabited by sparrows that came across the continent. Environmental factors that affect immigration are discussed.

Walkinshaw, Lawrence H. (819 North Ave., Battle Creek, Mich.) THE EFFECT OF PARASITISM BY THE BROWN-HEADED COWBIRD ON EMPIDONAX FLYCATCHERS IN MICHIGAN. Auk 78(2): 266-268. Apr. 1961. WR 103: 49

Three of the 4 Empidonax flycatchers in Mich. have been found to be parasitized by the brown-headed cowbird (Molothrus ater). The Acadian flycatcher (E. virescens) is the most susceptible to parasitism by cowbirds. Of 67 nests, 16 (24%) were parasitized. Brown-headed cowbirds, with a shorter incubation period, hatched in all cases prior to the hatching of the flycatcher eggs. The female flycatcher apparently abandons steady incubation the next day and her eggs fail to hatch.--From auth. summ.

Weller, Milton W. (Iowa State Coll., Ames.) BREEDING BIOLOGY OF THE LEAST BITTERN. Wilson Bull. 73(1): 11-35, 11 figs. Mar. 1961. WR 103: 49

The nesting behavior and habitat of least bitterns were studied in several glacial lakes and marshes in Iowa. Eighty-nine nests were found and intensive observations were made at five nests. Nests were mainly in Typha spp., Scirpus acutus, and Scirpus fluviatilis. Clutch size varied from 2-6 eggs with smaller clutches being found early in the season. The species appears to be double-brooded in Iowa. The nest incubation, comfort, and nest relief movements are summarized. During hatching the adults remove the egg shells and eat them. Both parents feed the young by regurgitation. The innate responses of young and adult are discussed.--From auth. summ.

Werth, Irene. (Univ. Leeds, England.) THE PROBLEM OF FLOCKING IN BIRDS. Proc. Intern. Ornithol. Congr. 12: 744-748. 1958 [1960]. [From Biol. Abstr. 36(13), 1961.] WR 103: 50

Wetherbee, David Kenneth. (Univ. Mass., Amherst.) OBSERVATIONS ON THE DEVELOPMENTAL CONDITION OF NEONATAL BIRDS. Am. Midl. Nat. 65(2): 413-435, 1 fig. Apr. 1961. WR 103: 50

Abstract: The artificial incubation of eggs of about 100 species of wild birds was attempted. Egg and clutch weights, egg volumes, incubation periods, neonatal weights, interims between hatchings within clutches, number of days before hatching during which eggs float, and lengths of 6 of the long bones for neonates and adults are reported. Colors of natal down and of soft parts, especially of mouth linings, are given. Differences in extents of development at hatching are described, and some evolutionary postulates are discussed. This paper attempts to establish procedural standards under conditions that may allow for accurate and significant interspecific comparisons of incubation and neonatal condition independent of parental attentiveness and other environmental variables.

Wolfson, Albert. (Northwestern Univ., Evanston, Ill.) ROLE OF LIGHT AND DARKNESS IN THE REGULATION OF THE ANNUAL STIMULUS FOR SPRING MIGRATION AND REPRODUCTIVE CYCLES. Proc. Intern. Ornithol. Congr. 12: 758-789. 1958 [1960]. [From Biol. Abstr. 36(13), 1961.] WR 103: 50

BIRDS--MANUALS, FAUNAS, COMMUNITIES

Anderson, A., T. B. Bagenal, D. E. Baird, and W. J. Eggeling. (Aberdeen Univ., Scotland.) A DESCRIPTION OF THE FLANNAN ISLES AND THEIR BIRDS. Bird Study 8(2): 71-88, 1 fig. June 1961. WR 103: 50

During June 1959, observations were carried out on the birds of the Flannan Islands, Outer Hebrides. The islands and their bird colonies are described. Estimates are given for the numbers of breeding birds where this is possible. A red-headed bunting, little stint, quail, and tree sparrow were among the migrants seen that were new records for the Flannan Islands.--From auth. summ.

Cawkell, E. M., and J. E. Hamilton. THE BIRDS OF THE FALKLAND ISLANDS. Ibis 103a(1): 1-27, 1 fig. Jan. 1961. WR 103: 50

A list of 128 species of birds found in the Falkland Islands and annotated as to the observed status, distribution, and behavior.

Denis, Keith. BIRDS OF THE CANADIAN LAKEHEAD AREA. Thunder Bay Field Nat. Club, Suppl. no. 2. 8 p. 1961. WR 103: 50

A list of 267 species giving their status, earliest arrival date, and collection information.

Fawks, Elton, and Peter Petersen, Jr. A FIELD LIST OF BIRDS OF THE TRI-CITY REGION. Tri-City Bird Club. 40 p. 1961. (Available from Davenport Public Museum, Davenport, Iowa, at 50¢ plus postage.) WR 103: 50

This booklet is prepared to assist the bird watcher in the Tri-City region (Davenport, Iowa--Moline, Ill.--Rock Island, Ill.). Major birding areas (31) of the region are listed. Habitat preferences and relative abundance of the birds by months (divided into 10-day periods) are indicated. A map of the area, a section on aids for the birder, and a hypothetical list of birds complete the work.

Gladkow, N. A. ÜBER DIE VOGELFAUNA DER KULTURLANDSCHAFT. [THE AVIFAUNA OF THE AGRICULTURAL DISTRICT.] Proc. Intern. Ornithol. Congr. 12: 234-239. 1958 [1960]. [From Biol. Abstr. 36(12), 1961.] WR 103: 50

[In German.]

Hobbs, J. N. (Dungog, New South Wales.) THE BIRDS OF SOUTH-WEST NEW SOUTH WALES. Emu 61(1): 21-55, 1 fig. Mar. 1961. WR 103: 50

Irving, Laurence. (Arctic Res. Center, P. O. Box 960, Anchorage, Alaska.) BIRDS OF ANAKTUVUK PASS, KOBUK, AND OLD CROW / A STUDY IN ARCTIC ADAPTATION. USNM Bull. no. 217. viii + 409 p., 36 figs. + 13 pls. 1960. $2.00 from Supt. Documents. WR 103: 51

The first two-thirds of the book is devoted to a discussion of the environment of the 3 study areas. A list of the birds and general notes on each. A discussion and comparison are presented on the status and distribution of the birds found in the 3 areas. The final one-third of the book includes discussions of the following: migration and origins, residence of the birds in the arctic, biological aspects of migration and nesting, and arctic metabolic economy of warm-blooded animals.

James, Douglas. (Univ. Ark., Fayetteville.) SOME RECENT FINDINGS CONCERNING THE AVIFAUNA OF ARKANSAS. Proc. Ark. Acad. Sci. 14: 8-13. 1960. WR 103: 51

Notes on the most recent sightings of rare birds or of birds which had not been previously recorded in the state.

Johansen, Hans. (Univ. Zool. Museum, Copenhagen, Denmark.) REVISED LIST OF THE BIRDS OF THE COMMANDER ISLANDS. Auk 78(1): 44-56. Jan. 1961. WR 103: 51

The list of birds consists of 175 spp.--many are only accidental visitors. Regular migrants are less numerous with 55 spp. breeding on the islands. Of the breeding birds, only 20 spp. are land or shore birds. The avifauna is predominantly Palearctic, although a few species are Nearctic.

Kenyon, Karl W. (Sand Point Naval Air Sta., Seattle 15, Wash.) BIRDS OF AMCHITKA ISLAND, ALASKA. Auk 78(3): 305-326, 1 fig. July 1961. WR 103: 51

An annotated list of 69 species of birds is given. Brief discussions are presented on the climate of the island and the affect of predators on its bird populations.

Mountfort, Guy, and I. J. Ferguson-Lees. THE BIRDS OF THE COTO DOÑANA. Ibis 103a(1): 86-109, 1 fig. Jan. 1961. WR 103: 51

A total of 210 species of birds was identified, including one new to Spain, the masked shrike Lanius nubicus, and one new to Europe, the snad lark Calandrella raytal. The report is divided into two sections: species found breeding or observed to be feeding regularly in the study area, and those considered to be passage migrants or vagrants.--From auth. summ.

Novikov, G. A., editor. [SCIENTIFIC WORKS OF THE KANDALASKSHA STATE RESERVATION.] Tom II. Murmansk Book Publishers. 336 p. 1960. [From Ibis 103a(1), 1961.] WR 103: 51

Five papers deal with birds of this reserve in the N.W. of the U.S.S.R. They concern ecology and faunistics and form an interesting comparison with other subarctic regions.--P.J.T.

Portenko, L. A. [BIRDS OF THE USSR, PART IV.] Zool. Inst. Acad. Sci. USSR, Moscow. 414 p. 1960. 24.85 rubles. [From review in Auk 78(2), 1961. WR 103: 51

Volume deals with the Passeres not previously covered. There is a key to the families of Passeres in USSR and the following are discussed: Sylviidae, Regulidae, Muscicapidae, Prunellidae, Motacillidae, Bombycillidae, Laniidae, Sturnidae, Zosteropidae, Parulidae, Ploceidae, Icteridae, Fringillidae, and Emberizidae. There is a supplement to Part III--an index of Russian and scientific names as well as of synonyms. In each family there is a key to the genera. The relatively numerous nomenclatorial changes, based on extensive material in collections, are not in accordance with Wetmore's system.--F. J. Turček.

Rook, D. A. THE BIRDS OF A CULTIVATED AREA ON EPSOM COMMON. London Nat. 39(1959): 22-24. 1960. [From J. Anim. Ecol. 30(1), 1961.] WR 103: 51

The numbers of breeding pairs of robin, whitethroat, willow warbler, hedge sparrow and yellowhammer in a cultivated area, formerly scrub, adjoining woodland in which ploughing was discontinued in 1957, had all increased by 1959, probably owing to the widening and thickening of the hedges. Winter populations consisted almost exclusively of skylarks and meadow pipits.

Rowley, Ian. (Wildl. Survey Sec., C.S.I.R.O., Canberra, Australia.) BIRDS OF DOOKIE AGRICULTURAL COLLEGE, VICTORIA. Emu 61(1): 7-17. 1961. WR 103: 52

Summary: Bird observations were made at Dookie Agricultural College from March 1950 to February 1951, during which time 87 species were seen. These were grouped in 5 habitats--Timber Reserve, River, Paddocks, College Area and Dams. Within these the species were accorded a status--Resident, Migrant, Nomad or Visitor, in accordance with certain definitions. A list of species is included with brief notes.

Voous, K. H. ATLAS OF EUROPEAN BIRDS. Nelson, London. 284 p., 419 maps, 355 photos. 1960. 70s. [From review in Brit. Birds 54(3), 1961.] WR 103: 52

A book devoted primarily to maps. There are separate maps for each of the 419 species of birds found breeding regularly in Europe including birds with restricted distributions. An important feature, involving much research, is that the breeding range throughout the world is shown for all the species covered. The maps give no indication of range in winter or of migration route. These aspects are touched on in the accompanying text which generally devotes some 300-400 words to each species. Requirements of habitat, food, and nest site are given; the problems of closely related forms are discussed; details of past dispersal are mentioned and origins considered; and in some cases the author looks into the future. There are 355 photographs illustrating the majority of the species dealt with.--P. A. D. Hollom.

BIRDS--POPULATIONS & FLUCTUATIONS

Boyd, J. Morton. (Nature Conservancy, 12 Hope Terrace, Edinburgh.) THE GANNETRY OF SAINT KILDA. J. Animal Ecol. 30(1): 117-136, 12 figs. May 1961. WR 103: 52

The experience of 9 visits to the gannetry of St. Kilda during 1955-60, and the results of an exhaustive photographic survey conducted in mid-May 1959, are presented. A total index of 47,189 birds is converted by separate factors for aerial and land photographs to 44,526 pairs. The resulting estimate was a record one for this locality.--From auth. summ.

Bruns, Herbert. UNTERSUCHUNGEN ZUR SIEDLUNGSBIOLOGIE UND POPULATIONSDYNAMIK EINES VOGELBESTANDES IN EINEM EICHEN-HAINBUCHENWALD. [INVESTIGATION OF COLONY BIOLOGY AND POPULATION DYNAMICS OF A BIRD SETTLEMENT IN A[N] OAK-HORNBEAM FOREST.] Proc. Intern. Ornithol. Congr. 12: 133-143. 1958 [1960]. [From Biol. Abstr. 36(12), 1961.] WR 103: 52

[In German.]

Carrick, Robert. (Wildl. Survey Sec., C.S.I.R.O., Canberra, Australia.) THE AUSTRALIAN BIRD-BANDING SCHEME, 1953-60. Australian Museum Magazine 13(7): 222-227, 7 figs. Sept. 1960. WR 103: 52

Up to June 1960, some 135,000 birds had been banded. The average recovery rate was 10% and varies enormously from less than 1% in the case of marine petrels and shearwaters to 15% for ducks shot for sport and 50% in the case of the sedentary black-backed magpie. Figures in the text show the movements of several birds in Australia as determined from band recoveries and sightings.

Coombs, C. J. F. ROOKERIES AND ROOSTS OF THE ROOK AND JACKDAW IN SOUTH-WEST CORNWALL. PART II. ROOSTING. Bird Study 8(2): 55-70, 4 figs. June 1961. WR 103: 52

Three rook parishes were observed from 1943 to 1953 in South-west Cornwall. The largest of the roosts contained less than 15,000 birds, of which 75%-83% were jackdaws. Rooks from some rookeries go to 2 roosts. Times of coming and leaving the roost are related to sunset and sunrise, but were highly variable. The feeding flocks were composed of birds from the same rookery. The communal roost was used irregularly in the summer.--From auth. summ.

Funderburg, John Broadus, Jr. THE POPULATIONS, HABITAT RELATIONS AND ECOLOGICAL CHANGES IN THE WINTER BIRDS OF THE RALEIGH, NORTH CAROLINA, REGION, 1880-1959. Ph.D. thesis, N. C. State Coll. 121 p. 1960. [From Dissertation Abstr. 22(1), 1961.] WR 103: 53

An annotated list of 145 spp. is presented and well-marked ssp. recorded in the winter at Raleigh, N. C. The changes in status of all spp. recorded during 1880-1959 are presented in tabular form. Eighty-nine spp. showed no change in relative abundance or residence status. Twenty-two particular factors associated with these changes were determined during this study. Habitat modifications are the major factor associated with the majority of the changes in status of the winter birds. Other factors of importance are also discussed, and include the following: population changes outside the region, collecting or cessation of collecting, climate, and changes in the local weather conditions.

Halloran, Arthur F. (Wichita Wildl. Refuge, Cache, Okla.) NOTES ON WINTERING POPULATIONS OF THE BALD EAGLE ON THE WICHITA MOUNTAINS WILDLIFE REFUGE. Proc. Okla. Acad. Sci. 40: 120-121. 1960. WR 103: 53

The bald eagle winters on the Wichita Mountains Wildl. Refuge, Okla. Observations for 1954-9 include arrival and departure dates, peak numbers, and adult-subadult ratios.

Hansson, G., and L. Wallin. [THE IRRUPTION OF WAXWINGS BOMBYCILLA GARRULUS IN THE WINTER OF 1956-57.] Vår Fågelv. 17: 206-241. 1958. [From Ibis 103a (1), 1961.] WR 103: 53

Swedish with English summary. Detailed documentation of an invasion in Scandinavia tracing its origin from abundant breeding in Scandinavia and in the White Sea area.--N.G.B.J.

Havlín, Jirí, and Čestmír Folk. DOBA HNÍZDENÍ A POCET MLÁDAT ŠPAČKU OBECNÝCH V ČSSR. [THE BREEDING SEASON AND NUMBER OF YOUNG IN THE STARLING, STURNUS VULGARIS L., IN CZECHOSLOVAKIA.] Zool. Listy 24(1): 67-84, illus. 1961. [From Biol. Abstr. 36(14), 1961.] WR 103: 53

[In Czech] with English summary. This paper is based on data from 6247 nests of the European starling obtained in the banding records of the banding station of the Czechoslovakian Ornithological Society [National Museum, Prague]. Nesting period [from banding data of the young, approximately one month after the beginning of the nesting period], the ratio of first/second nesting period, and the number of young are evaluated. The nesting period differs in single years. There is an average difference of 39 days between the first and second nesting, this difference being shorter than the necessary period of parental care and preparation for another nesting. Therefore, only those starlings are able to nest in the second nesting period in which the first nesting has terminated extraordinarily soon [or those which have not nested in the first nesting period]. The difference between the first and second nesting period is shorter in those years with a delayed first nesting period. In this country, there is a second nesting period by about one third of the starlings of the first nesting period. In middle elevations of 250-500 m, the percentage of second nesting is higher than both in lower and higher elevations. There is an average number of 4.2 young in the nests. In the first nesting period, the average number is distinctly greater than in the second in all years examined. The average number shows a tendency to decrease in connection with the nesting period but with 2 peaks corresponding to the earlier parts of first and second nesting period. More than three fourths of all young starlings produced in the entire nesting season were found in May; only 6.2%, in July. No correlation between the number of young in geographic regions of Czechoslovakia and on altitude could be found. In the European scale, the number of young in nests in Czechoslovakia are similar to those in Switzerland, higher than in Germany, the Netherlands, and Britain--Authors.

Joensen, Anders Holm. FUGLETAELLINGER I VESTJYLLAND SOMMEREN 1959. [STUDIES OF BIRD POPULATIONS IN WESTERN JUTLAND, IN THE SUMMER OF 1959.] Dansk Ornithol. For. Tidsskr. 54(4): 169-188, illus., maps. 1961. [From Biol. Abstr. 36(13), 1961.] WR 103: 54

In Danish with English summary. A census was made in an area of 3.71 sq km, consisting of heath with "brown dunes," "gray dunes," the beach of the North Sea, and a small coniferous wood. The total breeding intensity for heath and "brown dunes" was 36 pairs, and for the "gray dunes" 19 pairs, per sq km (not counting the cuckoos). The beach had 12 pairs per sq km, equivalent to a coastline of 0.83 km per pair. In the wood the census was more difficult to make than in the open areas, but the results obtained are separately tabulated. The density of all spp., in the whole wood area (0.265 sq km) was 300 pairs per sq km, i.e. about 9 times as many as in the open areas. The percentages of the total population of the 8 commonest spp. of the wood, compared with other Scandinavian investigations in wooded areas, are tabulated, as well as the breeding density of birds in some other European wood areas.--From auth. summ.

MacArthur, Robert H., and John W. MacArthur. (Univ. Pa., Philadelphia.) ON BIRD SPECIES DIVERSITY. Ecology 42(3): 594-598, 3 figs. July 1961. WR 103: 54

Bird censuses on a wide variety of areas are compared in order to see what aspects of environmental variation control bird species diversity. In deciduous forests, bird species diversity can be predicted in terms of the height profile of foliage density. Plant species diversity, except by influencing this profile, has nothing to do with the number of bird species. The height levels of 0-2', 2'-25', and >25' seem equally important in determining bird species diversity; these layers presumably correspond to different configurations of foliage. An evolutionary argument is given which predicts the observations and at the same time suggests that niches should be "convex". Supporting evidence is provided. --From auth. summ.

Melluish, W. D. RECENT CHANGES IN THE BIRD POPULATION OF GRASSLAND WITH ENCROACHING SCRUB AT BOOKHAM COMMON. London Nat. 39(1959): 89-98. 1960. [From J. Animal Ecol. 30(1), 1961.] WR 103: 54

Between 1948 and 1960, increasing scrub in an area of grass and scrub, formerly grazed, was associated with an increase of 15% in the number of bird species, and the number of individuals in monthly counts varied from 628 in 1948 to 1129 in 1960. Summer breeding territories of nine prominent species fell from 60 in 40 acres in 1950 to 51-1/2 in 61 acres in 1959. Ground-feeding species declined more than those that feed on or among herbage, trees and bushes.

Novikov, G. A. [GEOGRAPHICAL VARIATION IN THE DENSITY OF FOREST-BIRDS IN THE EUROPEAN PART OF THE USSR AND ADJACENT COUNTRIES.] Zool. Zhur. 39: 433-447. 1960. [From Ibis 103a(1), 1961.] WR 103: 54

Russian with English summary. On the basis of the author's own investigations and of the literature, it is concluded that the density (expressed as pairs of birds per hectare) of forest-birds gradually increases from north toward the south and--less regularly--from east to west. There are marked yearly and seasonal fluctuations. Other factors influencing density are: age of stands, whether mixed or pure ones, shape of forest-area (edge-effect) and cultivation, etc. Among coniferous stands the lowest density has been found in pine-woods and among the broad-leaved ones in pure beech. The highest density of all occurs in oak and mixed oak stands, mainly in the forest steppe region, where densities up to 42 pairs were found. Artificial plantations and windbreaks in the same zone have up to 31.3 pairs. It is of interest that the pine wood densities apparently do not show any variation geographically.--F.J.T.

Port, L. N. A POPULATION AND DISTRIBUTION SKETCH OF BIRDS ON RATHLIN ISLAND, JULY 1958. Irish Nat. J. 13: 92-99. 1959. [From J. Animal Ecol. 30(1), 1961.] WR 103: 54

Classified list showing numbers and distribution of sixty-four species on this large island off the Antrim coast.

Rickard, W. H. (Hanford Lab., Richland, Wash.) NOTES ON BIRD NESTS FOUND IN A DESERT COMMUNITY FOLLOWING NUCLEAR DETONATIONS. Condor 63(3): 265-266. May 1961. WR 103: 55

Notes refer to gross damage to vegetation, and kinds and numbers of active nests found during the 3-year period following the series of nuclear detonations ending Sept. 1957. The nest found nearest detonation point was about 0.2 miles from ground zero. The destruction of shrubby vegetation appears to modify the community in favor of horned larks. At all seasons, populations of horned larks are greater in the disturbed area than in the adjacent shrub-dominated vegetation.

Treleaven, R. B. NOTES ON THE PEREGRINE IN CORNWALL. Brit. Birds 54(4): 136-141. Apr. 1961. WR 103: 55

There has been a sharp decline in the effective breeding success of the peregrine in Cornwall since 1955. There is an excess of ?? in the population and this seems to be a factor of some significance. Other factors such as human interference, predation, and the availability of food are discussed. Feral pigeons composed three-quarters of the remains examined.--From auth. summ.

BIRDS--ECONOMICS, CONTROL, MORTALITY

Aldrich, John W., Chandler S. Robbins, and Walter W. Dykstra. (Natl. Museum, Washington, D. C.) BIRD HAZARD TO AIRCRAFT. US F&WS, Wildl. Leaflet 429. 10 p., illus. Jan. 1961. WR 103: 55

In areas where the faster aircraft (turbo-prop and jet) are used, birds have become a problem. Several methods are discussed to reduce the number of birds using the airport and adjacent areas.

Anonymous. TO COMBAT MARAUDING BIRDS. Orchardist (New Zealand) 33(6): 189. 1960. [From Biol. Abstr. 36(15), 1961.] WR 103: 55

Grassing down orchards and setting up feeding areas well away from orchards (during the 6-week danger period) are recommended.--M. Korr.

Becker, P., and E. G. Gilbert. SELECTIVE BIRD DAMAGE ON PEARS IN WINTER. J. Roy. Hort. Soc. 83(12): 509-515, illus. 1958. [From Biol. Abstr. 36(10), 1961.] WR 103: 55

Stripping by birds of dormant buds causes fruit crop loss or reduction long before the new season has started. In some cases the buds are merely pecked and damaged, possibly because the bird was disturbed while feeding. These injured buds usually fail to develop at flowering time. Damage is not related to severity of weather or the amount of food available; attacks may be more severe in one locality than another, and the type of fruit most heavily attacked may vary in different years and different localities. The reasons for this are not fully understood, nor is enough known about the senses of taste and smell of birds to enable a satisfactory repellent to be devised.--M. Korr.

Bickerton, Brenda M., and W. Chapple. STARLING ROOSTS AND THEIR DISPERSAL. Agriculture (Great Britain) 67(12): 624-626. 1961. [From Biol. Abstr. 36(14), 1961.] WR 103: 55

Flocks roost in young forestry plantations, particularly those 10-30 years old. Trees of this age provide the right-sized branches and are a suitable height above the ground; the birds pack themselves on to the trees, so that the boughs bend under their weight. These plantations, whether of hard or soft woods, are at a vulnerable stage of growth, and damage by large flocks of starlings can result in severe loss. The weight of the birds on the branches, and in particular the pressure occasioned when they all fly off in the early morning, may break the boughs; and the accumulation of droppings over several years may eventually kill the trees. The young woods are frequently used as game coverts, and the presence of large numbers of starlings may result in the dispersal of game birds to less favorable areas. During the last few years, many attempts have been made to disperse these large flocks into smaller groups so that the likelihood of damage is lessened. Two methods of dispersal have met with some success; one relies on noise, and the other on smoke and noise.--Authors.

Coulson, J. C. (Univ. Durham, England.) THE POST-FLEDGING MORTALITY OF THE BLACKBIRD IN GREAT BRITAIN. Bird Study 8(2): 89-97, 1 fig. June 1961. WR 103: 56

Band recoveries were analyzed to determine the post-fledging mortality of blackbirds. The cause of mortality varied with age; more young were shot than adults and the young were more often entangled in netting. The mortality of the blackbirds was compared with that of the starlings. Mortality was higher in the first year of life. After the first year the mortality became constant, irrespective of age and sex, at about 44% per year. There was considerable variation in the annual mortality of the adults varying from 34% for 1953-4 to 69% for 1938-9.--From auth. summ.

Duncan, C. J., E. N. Wright, and M. G. Ridpath. (Univ. Liverpool, Liverpool, England.) A REVIEW OF THE SEARCH FOR BIRD-REPELLENT SUBSTANCES IN GREAT BRITAIN. Ann. des Épiphyties 1960: 205-212. 1960. WR 103: 56

"This short review describes recent work in Great Britain on substances which, when applied to crops or structures, might prevent damage by certain species of birds."

Garratt, T. BIRD PROBLEMS IN STONE FRUIT ORCHARDS. Oreg. State Hort. Ann. Rept. 52. p. 71. 1960. [From Bibliog. Agr. 25(5), 1961.] WR 103: 56

Griffin, Daude N., and F. M. Baumgartner. (Okla. State Univ., Stillwater.) EVALUATION OF CERTAIN CHEMICALS AS BIRD REPELLANTS. Proc. Okla. Acad. Sci. 39: 78-82. 1959. WR 103: 56

The following conclusions were reached as a result of a study on the value of certain chemicals in repelling cowbirds and sparrows from grain: plastic sink strainers proved more satisfactory than pans as grain receptables; field tests should be carried on for a week to allow for erratic movement and bird behavior; certain chemicals gave complete protection and apparently discouraged birds from feeding in these plots for some time after treated grain was replaced by untreated grain; consumption of treated grain (as a per cent of total grain placed in each pan) was used to measure repellency; prebaiting was necessary to attract birds to an area; and a large area made up entirely of treated plots was more effective in repelling birds than a comparable-sized area of small plots interspersed with controls.--From auth. concl.

Haftorn, S. THE PROPORTION OF SPRUCE SEEDS REMOVED BY THE TITS IN A NORWEGIAN SPRUCE FOREST IN 1954-55. Det Kongelige Norske Videnskabers Selskabs Forhandlinger, (Trondheim) 32: 121-125. 1959 (1960). [From Commonwealth Forestry Bur., Centralized Title Serv. Cards, 28 Apr. 1961.] WR 103: 56

Tabulated results of observations show the average number of seeds taken per hour by different tit species, the number of tits in the study area, and the total number of seeds taken by all species in the autumn of 1954. The total weight of seeds taken in autumn to spring is estimated at 36.4 kg or 0.7% of the total seed produced.--Courtesy/ Frank M. Johnson.

Hardy, Joe W. RESIDENT AND MIGRANT BLACKBIRDS IN SOUTHEASTERN VIRGINIA: AGRICULTURAL DEPREDATIONS AND WINTER ROOST LOCATIONS. M.S. thesis, Va. Poly. Inst. 96 p. 1961. WR 103: 56

This was the third phase of a three year study of the influence of blackbirds on peanuts, milo and corn in southeastern Va. The roost of the largest blackbird concentration in the east, estimated at 15 to 20 million birds, was located and visited in Dismal Swamp.--Burd S. McGinnes.

Herberg, M. DREI JAHNZEHNTE VOGELHEGE ZUR NIEDERHALTUNG WALDSCHÄDLICHER INSEKTEN DURCH DIE ANSIEDLUNG VON HÖHLENBRÜTERN. [THREE DECADES OF FOSTERING BIRD LIFE FOR THE SUPPRESSION OF INJURIOUS FOREST INSECTS THROUGH COLONIZATION BY HOLE NESTERS.] Arch. Forstw. 9(11): 1015-1048, illus. 1960. [From Commonwealth Forestry Bur., Centralized Title Serv. Cards, 25 May 1961.] WR 103: 56

In German with Russian and English summaries. Twenty-seven references.--Courtesy/ Frank M. Johnson.

Jennings, A. R. (Univ. Cambridge, England.) THE MAJOR CAUSES OF DEATH OF WILD BIRDS IN GREAT BRITAIN. Proc. Intern. Ornithol. Congr. 12: 353-357. 1958 [1960]. [From Biol. Abstr. 36(12), 1961.] WR 103: 57

During a 5-year period, 800 dead birds of 104 species were examined and where possible the cause of death was determined. Chief causes of death were trauma 29%, infectious disease 18%, poisons 10%, adverse climatic factors 11%, miscellaneous causes 10%, and parasitic diseases 4%. In 18% of the birds, cause of death could not be determined.

Kadočnikov, N. P. [ON THE FOOD OF NESTLINGS OF INSECTIVOROUS BIRDS IN THE SAVALA FOREST DISTRICT, VORONEZH REGION, AND ASSESSING THE SILVICULTURAL IMPORTANCE OF BIRDS IN THE NESTING PERIOD.] Trudy Vsesojuznogo Instituta Zaščity Rastenij (Leningrad) no. 15. p. 225-317. 1960. [From Commonwealth Forestry Bur., Centralized Title Serv. Cards, 24 Apr. 1961.] WR 103: 57

In Russian. Twenty-five references.--Courtesy/ Frank M. Johnson.

LeFebvre, Paul W. BLACKBIRDS IN SOUTHEASTERN VIRGINIA: NESTING, PRODUCTIVITY, DEPREDATIONS, AND DAMAGE CONTROL METHODS. M.S. thesis, Va. Poly. Inst. 106 p. 1961. WR 103: 57

A report on the second phase of ecological and agricultural relationships of blackbirds in southeastern Va. Relatively light damage to peanuts, milo and corn by blackbirds was experienced. Combine Sargrain milo showed excellent blackbird resistance in laboratory and field tests. Increased use of artificial drying of peanuts is expected to greatly lessen blackbird depredation complaints. --Burd S. McGinnes.

Smith, M. D. BIRD PROBLEMS IN STONE FRUIT ORCHARD. Oreg. State Hort. Soc. Ann. Rept. 52. p. 34. 1960. [From Bibliog. Agr. 25(5), 1961.] WR 103: 57

Spaans, A. L. HET ZILVERMEEUWENPROBLEEM OP VLIELAND. [THE HERRING GULL PROBLEM ON THE ISLE OF VLIELAND, NETHERLANDS.] Levende Natuur 62(2): 25-29. 1959. [From Biol. Abstr. 36(15), 1961.] WR 103: 57

In Dutch. Observations made in the year 1958 are reported. Control of the number of herring gulls in an effort to protect other species of birds leads to success, but also leads to increasing numbers of odd herring gulls roaming on the tidal flats. It is especially these herring gulls which kill many shelducklings and eider-ducklings, the former being more vulnerable than the latter. Shelducks seem to lose their former habit to follow the predating herring gulls, which increased the risk for their remaining ducklings. Young ones of avocets, redshanks and terns fall victim to the herring gulls in a lesser degree.--P. Korringa.

Tenovuo, Rauno. SAARISTON PESÄROSVOLINNUISTA JA NIIDEN AIHEUTTAMIEN VAHINKOJEN TORJUMISESTA. [ON THE NEST PLUNDERING BIRDS IN THE ARCHIPELAGO AND METHODS OF PREVENTING SUCH DAMAGE.] Suomen Riista 13: 52-65, 3 figs. 1959. WR 103: 57

In Finnish with English summary on separate mimeo. sheet. Based on field observations and the results of a questionnaire. The nest plunderers ranked as follows: crows, gulls, and waders.--From auth. summ.

BIRDS--PARASITES AND DISEASES

Šerý, V., and J. Strauss. ORNITÓZA A SALMONELÓZA U VOLNĚ ŽIJÍCÍCH PTÁKŮ V PŘÍRODNÍ REZERVACI A U DRŮBEŽE I LIDÍ V NEJBLIŽŠÍM OKOLÍ. [PSITTACOSIS AND SALMONELLOSIS IN A BIRD SANCTUARY AND IN DOMESTIC POULTRY AND MAN IN THE NEIGHBORHOOD.] Sborn. čes. Akad. Zemědělsk. Věd, Vet. Med. 5: 799-808. 1960. [From Vet. Bull. 31(6), 1961.] WR 103: 57

In Czech with summaries in German and Russian. Salmonella typhi-murium and S. london were isolated from 13 of 188 ducks, from 10 of 25 of their eggs, from 72 of 177 gulls and from 5 of 100 of their eggs, and from 7% of the other species examined. Psittacosis was demonstrated in ducks, pigeons, a dove, a jackdaw, and a gull by indirect tests.

GAME BIRDS--GENERAL

Bassini, E. OSSERVAZIONI SULLE MALATTIE PIÙ COMUNI DELLA SELVAGGINA ALLEVATA IN CATTIVITÀ. [COMMON DISEASES OF GAME BIRDS BRED IN CAPTIVITY.] Nuova Vet. 36: 197-200. 1960. [From abstr. in Vet. Bull. 31(7), 1961.] WR 103: 58

[In Italian with summaries in English, French, German, and Spanish.] The common diseases of wild birds in captivity are coccidiosis and intestinal parasitism.

Huey, William S. (Box 4201, Santa Fe, N. Mex.) BIRD HUNT SUCCESS REPORT. N. Mex. Wildl. 6(4): 17 + 1 page of graphs. July-Aug. 1961. WR 103: 58

For the 1960-1 hunting season, 5434 hunter questionnaires were analyzed. The total harvest and the number of hunters participating are given for the following: ducks, geese, sandhill cranes, quail, doves, pheasants, grouse, and prairie chicken. The 1960 harvest is compared with that of the preceding season for several of the species.

I.C.I. Game Services. HATCHING GAME BIRDS' EGGS IN INCUBATORS. I.C.I. Game Res. Sta. (Fordingbridge, Hampshire, England), Advisory Booklet no. 11B. 27 p., illus. 1961. WR 103: 58

The spring 1958 revision included a section on using brooders. The current revision deals solely with the use of incubators for game birds' eggs.

Rudd, Clayton G., editor. [UPLAND GAME BIRDS.] Naturalist 11(2): 1-32, illus. Summer 1960. WR 103: 58

Entire issue of this journal of the Natural History Society of Minnesota is devoted to upland game birds. The following articles are included in the issue: Blue grouse of Big Blue Buck Mountain, Irven O. Buss; Gambel's quail--their social behaviour at waterholes, Gordon W. Gullion; Sage grouse--spring strutting activity, Robert L. Eng; Spring antics--pictorial study--prairie chicken and sage grouse, Wilford L. Miller; Indians and the prairie chicken dance, Reginald and Gladys Laubin; American woodcock--food and feeding habits, William G. Sheldon; Chukars--the exotic partridge, Don A. Johnson.

QUAIL

Bartlett, L. M., and Edward Lieberman. (Univ. Mass., Amherst.) POSSIBLE VISUAL IMITATION IN COTURNIX QUAIL. Anat. Record 138(3): 333. 1960. [From Biol. Abstr. 36(11), 1961.] WR 103: 58

Abstract.

Ellis, Jack A. (Ill. Nat. Hist. Survey, Urbana.) CONSUMPTION OF SOME FOOD ITEMS BY PEN-REARED BOBWHITES. J. Wildl. Mgmt. 25(3): 258-264, 1 fig. July 1961. WR 103: 58

Adult, pen-reared bobwhites were used to compare the consumption of 41 various seeds. Ten different seeds were used in each of 12 cafeteria style feeding trials, with 1 group of quail fed cracked corn as a control. Consumption of seeds and changes in weight varied with different trials. Bobwhites accepted to some extent all foods presented. The volume of seeds presented influenced consumption, and there were preferences for some seeds. Repetitions of some seeds resulted in an increase in their consumption. The tests indicated that cereal crop seeds and smooth sumac were generally the most readily consumed. --From auth. abstr.

Gallizioli, Steve. (4722 W. Crittendon Lane, Glendale, Ariz.) ABOUT QUAIL AND QUAIL HUNTING. Ariz. Game & Fish Dept., Contrib. Federal Aid Project W78R. 7 p., 8 figs. Oct. 1960. WR 103: 58

A 10-year study of two areas in Ariz. yielded the following results: (1) the per cent of the quail population taken by hunters is directly proportional to the size of the quail population, ranging from a low of 5% to a high of 25%; (2) the harvest is not proportional to the hunting pressure; (3) quail are subject to high natural mortality between the end of nesting season and the early part of Dec.; (4) great fluctuations in quail populations were positively correlated with the amount of winter precipitation; (5) adult sex ratio was 140 ♂♂ : 100 ♀♀ while the juvenile sex ratio was 109 ♂♂ : 100 ♀♀; and (6) the average hunter's bag was less than half the legal limit.

QUAIL--Continued

Keeler, James E. COTURNIX STUDIES [1957-9]. Ala. Dept. Conserv., Div. Game & Fish, Final Rept. Project W-38-R. iv + 27 p. June 1960. WR 103: 59

Of the 22,000 banded coturnix quail released on 8 study areas in Ala. from Apr. 1957 to July 1959, only 53 have been recovered by hunters. Band recoveries showed that the majority of the birds were taken south of the release area (64%). The average quail lived 84 days and travelled 94 miles from the release site.

Labisky, Ronald F. (Ill. Nat. Hist. Survey, Urbana.) REPORT OF ATTEMPTS TO ESTABLISH JAPANESE QUAIL IN ILLINOIS. J. Wildl. Mgmt. 25(3): 290-295, 1 fig. July 1961. WR 103: 59

Three groups of 500 Japanese quail (Coturnix coturnix japonica) were liberated in an intensively cultivated area of east-central Ill. during 1957 and 1958. Of the two releases made during the springs of 1957 and 1958, only the quail from the 1957 release are known to have reproduced, and this reproductive effort was at a very low level. Many quail dispersed from the area shortly after being released, but few bands were recovered. No Japanese quail wintered in the areas of release, and there was no known spring return of migrants following their late summer or fall dispersal. Some factors, which offer possible explanations for the inability of the imported Japanese quail to become established in Ill. and other midwestern states, are discussed.--Author.

Menzel, Karl. TO STOCK OR NOT TO STOCK. Outdoor Nebr. 39(6): 12-13, 25, 1 fig. June 1961. WR 103: 59

Article cites several examples of why stocking is not a feasible method for adding bobwhite quail to the hunter's bag.

Raitt, Ralph J., Jr. (N. Mex. State Univ., University Park.) PLUMAGE DEVELOPMENT AND MOLTS OF CALIFORNIA QUAIL. Condor 63(4): 294-303, 4 figs. July-Aug. 1961. WR 103: 59

The development of plumage in the Calif. quail (from the natal down covering the chick to the first winter plumage of the adult) is described. A figure is presented showing the weekly changes in plumage development of the birds. The regular replacement of the series of remiges, especially the primaries, may be used as a gauge to determine the age of the young quail. Adult quail undergo one complete molt each year at the end of the breeding season. Females usually start to molt about a month after the ♂♂, but their plumage is replaced in a shorter time. The molt is completed for both sexes in late October.--From auth. summ.

Stanford, Jack A. (124 Booneville Rd., Jefferson City, Mo.) HERE TODAY GONE TOMORROW. Mo. Conserv. Comm. Spec. Res. Rept. 2. 21 p. 1960. WR 103: 59

"A discussion on bobwhite quail population trends, the factors which influence them, and why quail stocking fails."

Weber, Andrew J. QUAIL WINGS TELL THE STORY. Wildl. in N. C. 25(5): 6-7, 1 fig. May 1961. WR 103: 59

Since 1957 more than 10,000 quail wings have been collected and studied. This study revealed that only about 3% of the quail population are less than 90 days of age on Thanksgiving Day; 7% are less than 90 days old on 15 Nov. and 14% are less than 90 days of age on 1 Nov. The study also revealed that quail undergo 77% population turnover each year. Exact percentages of juvenile quail in the hunters' bags during the four year study were as follows: 1957 -- 72.8%; 1958 -- 75.9%; 1959 -- 77.8%; and 1960 -- 81.6%.

PHEASANTS

Bauer, Ott. (RFD 1, Box 229-D, Gridley, Calif.) MAKING FARMS ATTRACTIVE FOR PHEASANTS. Calif. Dept. Fish & Game, Game Mgmt. Leaflet no. 3. 13 p., illus. 1961. WR 103: 59

The life requirements of pheasants are briefly discussed. The farming practices which benefit the pheasant are presented. A list is given of some plants suitable for habitat improvement plantings.

Greb, Raymond J. (S. Dak. State Coll., Brookings.) IRRADIATION OF PHEASANT OVARIES WITH GAMMA RAYS. Proc. S. Dak. Acad. Sci. 39: 170. 1960. [From Biol. Abstr. 36(14), 1961.] WR 103: 60
Abstract.

Reilly, James R., and Daniel A. Boroff. (N. Y. Conserv. Dept., Delmar.) THE TOXOID OF CLOSTRIDIUM BOTULINUM AS A MEANS OF IMMUNIZING PHEASANTS AGAINST AVIAN BOTULISM. N. Y. Fish & Game J. 8(1): 57-60. Jan. 1961. WR 103: 60
In the present study the concentration of toxin which pheasants, immunized with 2 injections of toxoid-incomplete adjuvant mixture, could withstand was determined to be 600 oral doses. In a field experiment, terminated by cool weather after a week, 30 of 250 unimmunized and 6 of 250 immunized birds succumbed to botulism intoxication.--From auth. abstr.

Sadler, Kenneth C. (Mo. Conserv. Comm., Columbia.) GRIT SELECTIVITY BY THE FEMALE PHEASANT DURING EGG PRODUCTION. J. Wildl. Mgmt. 25(3): 339-341, 1 fig. July 1961. WR 103: 60
Female pheasants showed a capacity for selection of calcium-bearing grit (limestone) over non-calcareous grit (granite) during egg laying. This selection was clearly indicated when the birds were fed a low (0.53%) calcium diet. Lowering the calcium content of the ration from 2.65% to 0.53% resulted in a substantial increase in total grit consumption, nearly all of which was calcareous. Raising the ratio of availability of granite over limestone had little effect on the selection of the limestone.--Author.

Trainer, Daniel O., Jr., and Cyril Kabat. (Wis. Conserv. Dept., Madison 1.) MICROORGANISMS IN THE INTESTINAL TRACT OF THE WISCONSIN GAME FARM RING-NECKED PHEASANT (PHASIANUS COLCHICUS). Wildl. Disease no. 9. 26 p., 12 figs. 26 June 1961. WR 103: 60
[Numbers 9 and 10 on one microcard.] Based on studies of penned ring-necked pheasants. The materials and methods employed are reported in detail. Birds were studied from the time of hatching to the age of one year. The results obtained reveal a considerable variation in the kinds and numbers of microorganisms found in the intestinal tract of the pheasant. The principal factor causing this variation was the diet of the bird. Significant variations occurred during the breeding and laying season, suggesting the possibility of hormonal or stress relationships. The possible application of the microflora technique to future wildlife disease investigations is discussed.--From abstr.

GROUSE, PARTRIDGE, ETC.

Helminen, Matti. METSON JA TEEREN SAALISKUVASTA VUOSINA 1954-1958. [COMPOSITION OF THE HUNTER'S BAG FOR CAPERCAILLIE AND BLACK GROUSE IN 1954-1958.] Suomen Riista 13: 20-32, 2 figs. 1959. WR 103: 60
In Finnish with English summary on separate mimeo. sheet. During 1954-8, the wings of 5,002 capercaillie and black grouse were collected. The kill statistics and the wing sample show that the capercaillie population started to decline in 1954 and black grouse population began its decline the following year. The largest portion of the capercaillie kill is early in the season. Males of both species are somewhat more vulnerable (54% and 60% of the bag) than the ♀♀. The percentage of juveniles in the bag varies with the reproductive success. The proportion of juveniles was highest in 1953 (65% and 63%) and lowest in 1957 (39% and 42%) of the kill for capercaillie and black grouse respectively. The juveniles are most vulnerable to gunning when the season begins, but there seems to be much variation in the monthly distribution of juveniles in the bag.--From auth. summ.

Jenkins, David. (Marischal Coll., Aberdeen Univ., Scotland.) SOCIAL BEHAVIOUR IN THE PARTRIDGE PERDIX PERDIX. Ibis 103a(2): 157-188, 9 figs. + 3 pls. Apr. 1961. WR 103: 60
Some aspects of partridge behavior are discussed. Their activities can be grouped into 2 different categories with the aid of certain defined criteria: those resulting primarily from intraspecific interaction and those occurring independently of interaction (mainly feeding and courting). Some activities, notably preening and resting, were found to occur under both categories. An index is described which is used to measure the proportion of time spent

feeding and courting. The behavior of birds in different environments is compared. The degree of interaction with population density and ground cover in different fields was correlated, and the factors causing the interactions discussed. The possible importance of agonistic behavior with regard to dispersion and population control is discussed briefly. A correlation was observed between chick mortality in two summers and the interactions observed among adults during the previous winters. Figures illustrating the threat and alert postures, and the courtship and copulation displays are presented.--From auth. summ.

Lumsden, Harry G. (Ontario Dept. Lands & Forests, Maple, Ontario, Canada.) THE DISPLAY OF THE CAPERCAILLIE. Brit. Birds 54(7): 257-272, 1 fig. + 1 pl. July 1961. WR 103: 61

The displays of the capercaillie were studied at a display ground in Aberdeenshire in Apr. 1960. Descriptions are given of the song, flutter jump, threat, bowing, and pre-copulatory and post-copulatory displays.--From auth. summ.

Lumsden, Harry G. (Ontario Dept. Lands & Forests, Maple.) DISPLAYS OF THE SPRUCE GROUSE. Canadian Field-Nat. 75(3): 152-160, 2 figs. July-Sept. 1961. WR 103: 61

The following displays of the spruce grouse (Canachites canadensis) are described: flutter jump, head and tail-down display, strutting, tail flick, and head jerk. In sex recognition experiments (using grouse study skins) ♂ grouse reacted positively to both ♂ and ♀ skins. However, when skins of both sexes were used at the same time, the ♂♂ reacted positively to only the ♀ study skins.

Rajala, Paavo. METSONPOIKASTEN RAVINNOSTA (EDELTARIA TIETOJZ). [ON THE FOOD HABITS OF CAPERCAILLIE JUVENILES (PRELIMINARY REPORT).] Suomen Riista 13: 143-155, 4 figs. 1959. WR 103: 61

In Finnish with English summary on separate mimeo. sheet. The results were obtained from 28,700 food pickings. On about the 26th day, the birds diet changed from predominantly animal to one of predominantly vegetable food. During the first month, the birds' diet consisted of the following: small ground insects 36.3%, small flying insects 30.7%, spider threads containing small animals 13.1%, and larvae and worms 8.3%. The plant species most preferred were Vaccinium myrtillus, Melampyrum spp., and Vaccinium vitis idaea.--From auth. summ.

Stiven, Alan E. (Cornell Univ., Ithaca, N. Y.) FOOD ENERGY AVAILABLE FOR AND REQUIRED BY THE BLUE GROUSE CHICK. Ecology 42(3): 547-553, 1 fig. July 1961. WR 103: 61

The average weight of the invertebrates in the study area remained relatively constant during the time the chicks were feeding almost exclusively on animal matter. The major invertebrates and plants eaten by the chicks were collected and analyzed for their basic nutrients, and the average metabolizable energy values for both plants and invertebrates were calculated. The metabolizable energy and food requirements of the chick were determined by the factorial method and from reference to the basic energetics of the domestic chick. Barring extreme weather conditions, the number of invertebrates is sufficient to maintain the chick population in the area.--From auth. summ.

Suich, Peter S. (844 Mission Rd., Charleston 4, W. Va.) KING OF THE GAME BIRDS. W. Va. Conserv. 25(3): 21-24, 3 figs. May 1961. WR 103: 61

Range, food, habitat, breeding, nesting, young, mortality, and management of the ruffed grouse are discussed. Several characteristics for determining the sex of ruffed grouse in the field or laboratory are described.

Weeden, Robert B. (Alaska Dept. Fish & Game, College.) OUTER PRIMARIES AS INDICATORS OF AGE AMONG ROCK PTARMIGAN. J. Wildl. Mgmt. 25(3): 337-339. July 1961. WR 103: 62

Shape and pigmentation of outer primaries of rock ptarmigan from central Alaska proved unsatisfactory as age criteria. In a sample of 250 young and 39 adults collected in autumn, many individuals had primaries of intermediate shape. Whereas 96% of the young-of-the-year had pigment on the vane of the ninth primary feather, so did 33% of the adults. Fewer ♂♂ than ♀♀ had such pigmentation, regardless of age.--Author.

WESTERN STATES EXOTIC GAME BIRD COMMITTEE. ANNUAL REPORT / VOLUME 7 / MAY 1, 1959--APRIL 30, 1960. [Not for publication.] Approximately 70 pages. [1960.] WR 103: 62

Progress reports from various western states and provinces. Sex and age ratios, status, reproduction, bags, and narrative summaries of new introductions are among the subjects covered in these reports. Some findings: British Columbia -- Chukar partridge introduced in south central British Columbia in 1950. First open hunting season in 1955. Chukar are currently increasing and extending their range. Russian thistle (Salsola kali) and downy brome grass (Bromus tectorum) constituted the main items of food during the winter months. Calif. -- Barbary partridge, Turkish chukar partridge, French red-legged partridge, Spanish red-legged partridge, Greek chukar, Rio Grande turkey, Merriam's turkey, bobwhite quail, coturnix quail, and Erckel's francolin are among the game birds considered for introduction or are currently being stocked. Colo. -- Chukar partridge reproduction was poor in 1959. A release of 169 birds from an airplane on 2 semi-remote areas was successful. Chukar population was estimated at 6,850 for 1959. Spanish red-legged partridge, valley quail, and Hungarian partridge are either under consideration or have been recently stocked. Hawaii -- Chinese bamboo partridge are surviving well in the wild. Gambel's quail are considered as being established. It is too early to evaluate success of other species except the "Turlock" turkey, Reeves's pheasant, and Indian chukar which have been largely unsuccessful. Idaho -- Hunter questionnaire results for the 1959 season indicated a statewide kill of 28,870 chukars, the second highest total on record. Nev. -- Thirty-five "guzzlers" have been installed for chukar partridge use. N. Mex. -- A paratyphoid infection (Salmonella anatum) was found to be the organism causing loss among young chukar at the Bird Farm. Oreg. -- An average of 7.0 chicks per hen chukar was recorded for 1959. To date 70,477 chukars have been released. Hunter questionnaire survey revealed a harvest of 36,326 birds by 11,373 hunters. Texas -- Chukar partridge releases in Brewster County total 703 birds. Gray francolin (290) were planted in McCulloch County and appear to be doing well. Wash. -- Chukar partridge are extending their range due to ideal wintering conditions. Wyo. -- A total of 453 chukars was classified and the adult/young ratio was 100 : 670.

WESTERN STATES EXOTIC GAME BIRD COMMITTEE. ANNUAL REPORT / VOLUME 8 / MAY 1, 1960--APRIL 30, 1961. [Not for publication.] Approximately 62 p. [1961.] WR 103: 62

Progress reports from various western states and provinces. Sex and age ratios, status, reproduction, bags, and narrative summaries of new introductions are among the subjects covered in these reports. Some findings: Ariz. -- Chukar partridge has been planted in 2 areas in Ariz. In the interval from 1957-9 there have been 1,133 birds released. There has been some reproduction on both areas. Calif. -- The exotic game bird production for 1959-60 and the state-sponsored game releases of exotic birds for 1958-61 are tabulated. Rio Grande turkey had good first year reproduction and are increasing substantially. Colo. -- Chukar partridge reproduction for 1960 was the second highest recorded and much improved over that of 1959. Chukar population was estimated at 8,000 birds. Hawaii -- Gambel's quail and Chinese bamboo partridge have become established and signs are encouraging for the establishment of the Reeves's pheasant, gray francolin, Erckel's francolin, and Rio Grande turkey. Idaho -- Chukar partridge reproduction was considered sub-normal and hunting success generally poor with the exception of the upper Salmon River drainage. Nev. -- Chukar have become established in the Virgin Mountains. Production was higher than in 1959, but still below production realized in a good moisture year. Successful reproduction was noted from the gray francolin in 1960 in both release areas. N. Mex. -- During the report period 7,688 chukars were

released. Birds of Turkish subspecies totaled 4,083 and birds of the Indian subspecies totaled 3,605. Methods by which Turkish chukars can be aged and sexed are presented. Oreg. -- Liberation of game farm chukars in 1960 totaled 5,314 birds. A total of 37,683 chukars was harvested by 9,442 hunters in 1960. Texas -- Releases of 270 gray francolin partridges were made in 1959. Successful reproduction was noted in 1959 and in 1960. Wyo. -- A total of 4,283 game farm chukars was released in 1960. Adult/young ratio of 311 chukars classified in 1960 was 100 : 607. For the previous four years the adult/young ratio ranged from 100 : 630 to 100 : 830.

TURKEY

Bailey, Wayne. (413 9th St., Marlinton, W. Va.) HIGHLIGHTS OF THE REPORTED TURKEY KILL. W. Va. Conserv. 25(4): 16-17, 26, 2 figs. June 1961. WR 103: 63

A total harvest of 1,259 wild turkeys was reported by W. Va. hunters for 1960. This was a decrease of about 16% from the kill of 1,511 in 1959. Camp Creek State Forest comprising 6,000 acres had the highest density of kill ever recorded in the state. Thirty-three turkeys were harvested. This amounted to a density of 3.5 turkeys per square mile.

Pollack, Bill, and Lewis Cowardin. WILD TURKEYS IN MASSACHUSETTS? Mass. Wildl. 12(3): 15-20, 1 fig. May-June 1961. WR 103: 63

Brief history of the wild turkey in Mass. is presented. The life requirements of the turkey and the problems of reinstating the wild turkey in Mass. are discussed.

DOVES AND PIGEONS

Hofstetter, Fritz-Bernhard. MÖGLICHE FAKTOREN DER AUSBREITUNG VON STREPTOPELIA D. DECAOCTO FRIV. [POSSIBLE FACTORS IN THE EXTENSION OF S. D. DECAOCTO.] Proc. Intern. Ornithol. Congr. 12: 299-309, map. 1958 [1960]. [From Biol. Abstr. 36(12), 1961.] WR 103: 63

[In German.] [Streptopelia d. decaocto is the collared turtle dove.]

Kiel, William H., Jr. (Patuxent Wildl. Res. Center, Laurel, Md.) MOURNING DOVE STATUS REPORT -- 1961. US F&WS Spec. Sci. Rept.--Wildl. no. 57. iv + 34 p., 3 figs. June 1961. WR 103: 63

Abstract: An index to the 1961 mourning dove breeding population was obtained by a call-count survey conducted throughout the United States. Trends in the breeding-population index were calculated for three management units and for hunting and nonhunting states within management units. Trends in the breeding-population indexes from 1960 to 1961 were as follows: Eastern Unit down 4%, Central Unit down 10%, and no change in the Western Unit. Long term trends in the breeding indexes, however, are upward in the Central and Eastern Units. The index for the Western Unit is essentially unchanged from 1953. For the United States as a whole, the 1961 breeding-population index is down 7% from 1960 and is 30% above the 1953 level.

Neely, William W. (SCS, Walterboro, S. C.) PLANNING AND PLANTING CAN PRODUCE DOVES. S. C. Wildl. 8(2): 10-11. Spring 1961. WR 103: 63

Browntop millet (Panicum ramosum) is recommended for planting as food for mourning doves. Pokeberry (Phytolacca americana) and woolly croton (Croton capitatus) are both promising dove food plants. The methods of planting browntop millet and woolly croton are briefly discussed.

WATERFOWL

Askaner, T. [OBSERVATIONS ON THE BREEDING BIOLOGY OF THE COOT FULICA ATRA.] Vår Fagelv. 18: 285-310. 1959. [From Ibis 103a(1), 1961.] WR 103: 63

In Swedish with English summary. Territory boundaries were constant from year to year even though birds were absent in winter. Both sexes defend territory but only *dd* build. Both brood and build during incubation. Threat postures of adults and begging behavior of young are described and illustrated.

Bednarik, Karl. (Magee Marsh Wildl. Area, Oak Harbor, Ohio.) WATERFOWL HUNTING ON A CONTROLLED PUBLIC AREA. Ohio Dept. Natl. Resources Publ. W-127. 16 p., 2 figs. June 1961. WR 103: 64

The results of 10 years of controlled waterfowl hunting at Ohio's Magee Marsh Wildlife Area on Lake Erie are presented. Hunter bias in reporting and behavior while hunting on the area are discussed.

Beshears, W. Walter, Jr. "WATERFOWL MANAGEMENT ON THE FARM." Ala. Conserv. 32(4): 18-20, 4 figs. June-July 1961. WR 103: 64

There are more than 20,000 farm ponds in Ala. Most of these afford little more than resting water for wild ducks for a few hours at a time. Methods are presented by which ponds, bottomland areas, and hardwood timber stands can be converted to areas that will attract and hold waterfowl. Included are discussions on: summer drawdown, best type of waterfowl food plantings, flooding planted areas in the fall, dam construction for bottomland flooding, and the artificial flooding of hardwood timber where the acorn mast can be utilized as food for ducks.

Ching, Hilda Lei. THREE TREMATODES FROM THE HARLEQUIN DUCK. Canadian J. Zool. 39(3): 373-376, 4 figs. June 1961. WR 103: 64

Three trematodes from the digestive tract of two harlequin ducks, Histrionicus histrionicus pacificus, were collected at Friday Harbour, Washington. They are Paramonostomum histrionici, n. sp. (Notocotylidae), and two microphallids, Pseridospelotrema japonicum Yamaguti (new locality record) and Spelotrema pygmaeum (Levinsen)--a new host and locality record.--From abstr.

Cooch, Graham. (Canadian Wildl. Serv., 900-269 Main St., Winnipeg 1.) ECOLOGICAL ASPECTS OF THE BLUE-SNOW GOOSE COMPLEX. Auk 78(1): 72-89, 6 figs. Jan. 1961. WR 103: 64

Blue geese and lesser snow geese are considered to be conspecific and color phases of Chen c. caerulescens. The frequency of blue genes is rapidly increasing. "A factor limiting brood size is interrupted egg laying and resulting differences in age of goslings within the brood. Since, in mixed clutches, the white-phase tend to be laid last, they are the last hatched and thus less likely to survive. Both phases are more successful in early breeding seasons than in retarded ones, but blue-phase birds and mixed pairs are more successful than white-phase birds, except in extremely retarded seasons. Populations breed, migrate, and winter as discrete entities with little gene exchange. White-phase birds are more likely to exhibit an interrupted migration and are therefore more frequently available to hunters in the United States."--From auth. summ.

Davies, S. J. J. F. (Wildl. Survey Sec., C.S.I.R.O., Australia.) THE ORIENTATION OF PECKING IN VERY YOUNG MAGPIE GEESE ANSERANAS SEMIPALMATA. Ibis 103a(2): 277-283, 2 figs. Apr. 1961. WR 103: 64

Donnelly, Jack A. THE VALUE OF WATERFOWL WING COLLECTIONS. W. Va. Conserv. 25(6): 26-27, 1 fig. Aug. 1961. WR 103: 64

Based on a sample of 215 duck wings submitted by 170 W. Va. hunters. The black duck was found to comprise 41.6% of the waterfowl killed in W. Va. and to have an age ratio of 0.6 young per adult. The wood duck was the second most numerous species comprising 27.5% of the kill and having an age ratio of 3.8 young per adult. Mallards made up 21.6% of the kill. The remaining 9% of the kill was distributed among 9 species.

Drury, William H., Jr. OBSERVATIONS ON SOME BREEDING WATER BIRDS ON BYLOT ISLAND. Canadian Field-Naturalist 75(2): 84-101, 5 figs. Apr.-June 1961. WR 103: 64

A study of the behavior of the red-throated loon (Gavia stellata), greater snow goose (Anser caerulescens atlanticus), old squaw (Clangula hyemalis), and the king eider (Somateria spectabilis), during the breeding season of 1954. The display patterns of the various birds are figured. A summary of the behavior of each of the birds is also presented.

Erskine, Anthony J. (Canadian Wildl. Serv., Sackville, New Brunswick.) NEST-SITE TENACITY AND HOMING IN THE BUFFLEHEAD. Auk 78(3): 389-396. July 1961. WR 103: 65

Female buffleheads exhibit a tendency to home to their native lake and often return to the precise nest site used in previous years. The homing tendency and the distance of moves between nest sites when renesting are similar to those established for other species of ducks. Female buffleheads return to the same moulting areas. Both sexes return to wintering grounds used in previous years.

Florschutz, Otto. (N. C. Wildl. Resources Comm., Raleigh.) PRELIMINARY SURVEY OF WATERFOWL POPULATIONS, HUNTING PRESSURE AND KILL AT LAKE MATTAMUSKEET 1959-1960. N. C. Wildl. Resources Comm., Federal Aid Project W-6-R. 13 p., 20 figs. Jan. 1961. WR 103: 65

The peak Canada goose population for the season (observed on 12 Nov. 1959) was estimated at approximately 135,000 birds. The wintering Canada goose population remained between 80,000 and 90,000 through the hunting season. Some dispersal of geese was noted. A combined total of 6,987 Canada geese (those killed at Lake Mattamuskeet and in adjacent fields) was bagged by 10,467 hunters for a combined success of 0.668 geese per hunter. Both hunting pressure and kill were influenced by weather and moon phases. Mid-December appeared to be the poorest part of the past hunting season on the lake as well as in the adjacent fields. Calculated crippling loss was 1,077 geese. The duck kill was 60% lower than during the 1958-9 season on the lake. Pintails accounted for about 46% of the bag. Approximately 8.8% of the goose population present on the lake during the hunting season was lost to hunting. An analysis of tail feathers, collected from 1,563 geese bagged on the Lake, revealed 60% to be young-of-the-year.--From auth. summ. and concl.

Foley, Donald D., Dirck Benson, Lee W. DeGraff, and Earl R. Holm. (N. Y. Conserv. Dept., Delmar.) WATERFOWL STOCKING IN NEW YORK. N. Y. Fish & Game J. 8(1): 37-48, 1 fig. Jan. 1961. WR 103: 65

Evidence indicates that most of the present breeding population of mallards in N. Y. result from stocking since 1934. Stocking during 1934-42 was to a large degree experimental and involved ducklings of 3 ages in addition to adults; 5-week-old birds gave the best results. During 1946-52, mallards were stocked in larger groups and more for the gun than before. Band returns showed that 10.3% of the adults released and 13.3% of the ducklings were taken by hunters. Mallard rearing and stocking were terminated following the 1952 season. Since then, stocking experiments with a number of other species have been carried on.--From auth. abstr.

Goethe, Friedrich. (Vogelwarte Helgoland, Wilhelmshaven, Germany.) A SURVEY OF MOULTING SHELDUCK ON KNECHTSAND. Brit. Birds 54(3): 106-115, 1 fig., 4 pls. Mar. 1961. WR 103: 65

Aerial surveys during 1955-6 show that Knechtsand is the most important moulting area for shelduck in Europe. In 1955 Knechtsand was already occupied by a maximum number of birds (100,000 or more) on 25 July and at least 75,000 were still recorded there during 9-12 Aug. The moult of the shelduck only takes 6 weeks, and the period during which moulting birds are present extends more than 3 months.--From auth. concl.

Goethe, Friedrich. (Vogelwarte Helgoland, Wilhelmshaven, Germany.) THE MOULT GATHERINGS AND MOULT MIGRATIONS OF SHELDUCK IN NORTH-WEST GERMANY. Brit. Birds 54(4): 145-161, 9 figs. Apr. 1961. WR 103: 65

Of the 1,481 shelduck banded on Knechtsand since 1952, only 94 (6.35%) have been recovered. Of these, 38 have been recovered in Germany, mainly within 50-100 kilometers of the moulting center. The rest were from Britain and Ireland (31), Netherlands (13), France (8), Denmark (2), Belgium and Norway (1 each). In addition, shelduck banded in Britain, the Netherlands, Sweden, and Denmark have been recovered in the Knechtsand area in the moulting season.

Grenquist, Pekka. HAVAINTOJA SAARISTOMEREN PILKKASIIPIPOIKUEISTA. [OBSERVATIONS ON VELVET SCOTER BROODS IN THE ARCHIPELAGO-SEA.] Suomen Riista 13: 73-92, 5 figs. 1959. WR 103: 66

In Finnish with English summary on separate mimeo. sheet. At Aspskär and other island groups near the open sea in the Gulf of Finland, the brood mortality of velvet scoters was found to be almost 100%. Reproductive success in velvet scoters is possible only in summers with favorable weather and where the species is sparsely distributed.--From auth. summ.

Grenquist, Pekka. VARIKSEN AIHEUTTAMASTA TUHOSTA SÖDERSKÄRIN LINTUSUOJELUALUEEN HAAHKAKANNALLE 1953-1959. [ON THE DAMAGE DONE BY CROW TO THE EIDER POPULATION IN THE BIRD SANCTUARY OF SÖDERSKÄR 1953-1959.] Suomen Riista 13: 156-163. 1959. WR 103: 66

In Finnish with English summary on separate mimeo. sheet.

Guiler, Eric R. (Univ. Tasmania, Hobart, Tasmania.) THE 1958-60 CAPE BARREN GOOSE AERIAL SURVEYS. Emu 61(1): 61-64. Mar. 1961. WR 103: 66

The numbers of Cape Barren Geese are steadily declining. In 1958 there were 1226 and in 1960 there were only 943. Hunting pressure is not excessive and illegal activities may be the major factor in the decline.

Hansen, Henry A. (Bur. Sport Fisheries & Wildl., Juneau, Alaska.) LOSS OF WATERFOWL PRODUCTION TO TIDE FLOODS. J. Wildl. Mgmt. 25(3): 242-248, 2 figs. July 1961. WR 103: 66

The possible loss of a season's total waterfowl production under Arctic conditions in certain coastal environments has been recognized for many years. Tidal activity was studied in 1951 on the Yukon-Kuskokwim Delta in Alaska where the nesting densities reached 276 nests per square mile, with a hatching success of 73% to 89%. In 1959 on Alaska's Copper River Delta, 338 waterfowl nests were followed to completion on an area which was covered by 2 cycles of flood-tide during the nesting period. Nests were observed in water as much as 8 inches deep. Hatching success of 1,017 eggs was 83.5%. The greatest loss from floodin was due to a lowered viability of the eggs rather than to total destruction of the nests.--Author.

Hess, Eckhard H. (Univ. Chicago, Chicago, Ill.) IMPRINTING. Science 130 (3368): 133-141, 10 figs. July 1959. WR 103: 66

A description of studies on imprinting carried on since 1951 at McDonogh and Lake Farm Lab., Md. and at the Univ. of Chicago. Some imprinting in ducklings occurs immediately after hatching, but a maximum score is attained by the ducklings imprinted in the 13-16 hour-old age group. Laboratory results were verified by field tests. The importance of color and form of the imprinting object was investigated. Auditory imprinting in the egg, the effects of time and distance on the strength of imprinting, innate behavior patterns, effect of drugs, cerebral lesions, and genetic differences were also investigated as to their effect on imprinting. The degree to which various mammals and birds imprint is presented in a table.

Hoffmann, L. LE SATURNISME, FLEAU DE LA SAUVAGINE EN CAMARGUE. [LEAD POISONING, SCOURGE OF THE WILD WATERFOWL IN CAMARGUE.] Terre et Vie 107(2): 120-131. 1960. [From Biol. Abstr. 36(10), 1961.] WR 103: 66

Fluoroscopic inspection of 7988 ducks in 1957-1959 shows a rate of lead poisoning nearly 3 x higher than in the United States: 4.2% of 7252 Anas crecca, 24.0% of 533 Anas platyrhynchos, and 32.0% of 203 Aythya fuligula. Lead poisoning of teal reaches a peak in January; it declines in February and March, although the duck hunting season lasts until the end of March. Experiments indicate that the sowing of fine gravel in muddy areas of marshes may reduce the rate of lead poisoning.--R. M. Chew.

Holgersen, Holger. WANDERUNGEN UND WINTERQUARTIERE DER SPITZBERGEN KURZSCHNABELGÄNSE. [MIGRATION AND WINTERING OF THE SPITZBERGEN PINKFOOTED GEESE.] Proc. Intern. Ornithol. Congr. 12: 310-316, maps. 1958 [1960]. [From Biol. Abstr. 36(12), 1961.] WR 103: 66

[In German.]

Jahn, Laurence R. (Wildl. Mgmt. Inst., Horicon, Wis.) THE STATUS OF WATERFOWL CONSERVATION. Wilson Bull. 73(1): 96-106. Mar. 1961. WR 103: 67
This report by the Wilson Ornithol. Soc. Conserv. Com. stresses that action is needed now on the major waterfowl conservation issues. The challenge is to maintain a reasonable volume of waterfowl to meet present and expanding future demands of the public. Report discusses the factors which are diminishing the breeding, migration, stopover, and wintering ground habitats and what is being done for their preservation. The problems of population management including research, regulations, and crop depredations are discussed.

Johnsgard, P. A. (Univ. Nebr., Lincoln.) THE TAXONOMY OF THE ANATIDAE--A BEHAVIOURAL ANALYSIS. Ibis 103a(1): 71-85, 9 figs. Jan. 1961. WR 103: 67
Behavioral patterns are used as the means of classifying the Anatidae. A summary of suggested modifications in tribal composition, generic limits, and other major points which would change the classification of Delacour and Mayr (1945) is presented.--From auth. summ.

Johnsgard, Paul A. (Univ. Nebr., Lincoln.) EVOLUTIONARY RELATIONSHIPS AMONG THE NORTH AMERICAN MALLARDS. Auk 78(1): 3-43, 12 figs. Jan. 1961. WR 103: 67
A comparative morphological, behavioral, and electrophoretic study was undertaken on 6 populations of North American mallards currently considered to comprise 4 species and 2 additional subspecies. These included: Anas platyrhynchos platyrhynchos, A. diazi diazi, A. d. novimexicana, A. fulvigula fulvigula, A. f. maculosa, and Anas rubripes. The recommended taxonomic grouping of the 6 mallard populations and the methods and results which substantiate this grouping are presented.--From auth. summ.

Klopman, Robert B. (Cornell Univ., Ithaca, N. Y.) THE GREETING CEREMONY OF CANADA GEESE. Magazine Ducks & Geese 12(11): 6-9, 2 figs. Apr.-June 1961. WR 103: 67
The greeting display may be seen in 3 different behavioral situations: (1) in close association with attack and related behavior, (2) as an aftermath of some general disturbance, and (3) when an individual returns to the group after a period of separation from it. Comparisons are made between threat, attack, and greeting displays. Descriptions are given of the various displays and their accompanying vocalizations. Greeting has survival benefit for the species because it contributes to the solidarity and synchronous behavior of the group. Greeting is also closely tied to the aggressive force which prevents intrusion by non-group members.

Lapage, Geoffrey. (3 Barton Close, Cambridge, England.) A LIST OF THE PARASITIC PROTOZOA, HELMINTHS AND ARTHROPODA RECORDED FROM SPECIES OF THE FAMILY ANATIDAE (DUCKS, GEESE AND SWANS). Parasitology 51(1-2): 1-109. May 1961. WR 103: 67
Includes a list of 692 references.

Madson, John. (Olin Mathieson Chem. Corp., East Alton, Ill.) THE MALLARD. Olin Mathieson Chem. Corp. 80 p., illus. 1960. WR 103: 67
This booklet is written in a popular style and is intended for the average sportsman. Its 5 chapters: life history, parasites and diseases, management, hunting, and man and the mallard present many pertinent facts and much valuable information that will interest both the veteran hunter and the biologist. Apposite quotations are presented at the beginning of each chapter and provide added flavor.

Mann, Grady E. (US F&WS, Box 222, Fergus Falls, Minn.) DROUGHT AND DUCKS ON THE PRAIRIES. Conserv. Volunteer 24(141): 25-29, 3 figs. May-June 1961. WR 103: 67
Results from 3 studies are presented which show how drought has decreased waterfowl production in the prairie areas of Canada and the United States. Importance of the fluctuations in water conditions must be considered in all waterfowl planning and management.

Matthews, G. V. T. (The Wildfowl Trust, Slimbridge, England.) AN EXAMINATION OF BASIC DATA FROM WILDFOWL COUNTS. Proc. Intern Ornithol. Congr. 12: 483-491. 1958 [1960]. [From Biol. Abstr. 36(12), 1961.] WR 103: 68

Nearly daily counts were made over 3 seasons on one reservoir, and supplemented by less full data from 3 others. Measures of reliability of monthly wildfowl counts showed differences between species. Changing frequency of counts had some effects on their reliability. Fluctuations of birds tended to cancel out between waters. Populations became more stable at certain times of year. Time of day, moon phase and tide state did not appear to affect stability of duck populations. Accuracy of visual estimates of numbers was tested by using photographs. Persons with much field experience were more consistent but the level of error was high. Errors made by different individuals tended to cancel out.--Auth. summ.

Matthews, G. V. T. (The Wildfowl Trust, Slimbridge, England.) "NONSENSE" ORIENTATION IN MALLARD ANAS PLATYRHYNCHOS AND ITS RELATION TO EXPERIMENTS ON BIRD NAVIGATION. Ibis 103a(2): 211-230, 8 figs. Apr. 1961. WR 103: 68

A strong tendency in non-migratory mallards to fly northwest on release is described. This orientation is shown regardless of distance and direction of release, of season, or of length of captivity. It is shown at any time of day by birds of both sexes and of all ages, and is unaffected by the topography of the release site. Head winds of moderate strength impart a wider scatter, otherwise winds have little effect. The orientation breaks down, probably quite quickly, and is replaced by random wandering. There are no indications of true navigational ability. The orientation may function to keep flocks together and be related to the northward post-fledging movements of many birds. The existence of such a strong orientation and its presence in another non-migratory bird, the pigeon, is considered to have caused confusion in experiments on navigation undertaken with the latter.--From auth. summ.

Moltz, Howard. (Brooklyn Coll., Brooklyn, N. Y.) AN EXPERIMENTAL ANALYSIS OF THE CRITICAL PERIOD FOR IMPRINTING. Trans. N. Y. Acad. Sci. 23(5): 452-461, 4 figs. Mar. 1961. WR 103: 68

The age at which the imprinting procedure proves effective in inducing following can be significantly extended by retarding the development of visual learning of the ducklings. Ducklings which showed a high tendency to follow at 48 hours of age, showed very little interest 24 hours later. The relative absence of fear did not insure the occurrence of following. The sensory experience of the animal prior to its initial exposure to the imprinting situation influences its behavior toward the test object.

Munro, David A. (Canadian Wildl. Serv., Ottawa.) FACTORS AFFECTING REPRODUCTION OF THE CANADA GOOSE BRANTA CANADENSIS. Proc. Intern. Ornithol. Congr. 12: 542-556, 2 figs. 1958 [1960]. WR 103: 68

Based upon studies on two areas in British Columbia. Complete histories were determined for 378 nests that contained 1,907 eggs. Breeding success of any pair is likely to be reduced by the intense territorial competition which occurs when the population is over-crowded. The factors of egg loss in order of importance were: nest desertion -- 41.7%, predation -- 15.6%, displacement -- 11.5%, and infertility -- 9.1%. Two population models, using different survival rates for the young but equal survival rates for adults, demonstrate the potentially significant effects survival rates can have upon the population.

Niess, H. BRÜTET DAS MÄNNCHEN VOM HÖCKSCHWAN, CYGNUS OLOR GM., WIRKLICH? [DOES THE MALE MUTE SWAN, CYGNUS OLOR, INCUBATE?] Beitr. Vogelk. 7: 19-21. 1960. [From Auk 78(1), 1961.] WR 103: 68

Gives evidence suggesting that ♂ of mute swans do not incubate but merely sit upon eggs to guard them when ♀ is away.--E.E.

Peterson, Neil. (Harvard Univ., Cambridge, Mass.) CONTROL OF BEHAVIOR BY PRESENTATION OF AN IMPRINTED STIMULUS. Science 132(3437): 1395-1396, 3 figs. 11 Nov. 1960. WR 103: 68

When presentation of an imprinted stimulus is dependent upon any randomly chosen response, the rate of emission of this response will increase. This control of responding requires a moving imprinted stimulus and does not require a following response by the duck.--From auth. abstr.

Rossi, J. A. H. CONTRIBUCIÓN AL CONOCIMIENTO DE LA BIOLOGIA DEL GANSO BLANCO COSCOROBA COSCOROBA (MOLINA). [CONTRIBUTION TO THE KNOWLEDGE OF THE BIOLOGY OF C. COSCOROBA.] Physis 21(61): 207-221, illus. 1960. [From Biol. Abstr. 36(12), 1961.] WR 103: 69

[In Spanish.] The biology of the white goose, C. coscoroba was studied for 8 years in the Buenos Aires Zoological Garden.--From abstr. by J. A. Peters.

Rustad, Orwin. (Breck School, Minneapolis, Minn.) A SURVEY OF DUCK HUNTING. Conserv. Volunteer 24(142): 40-48. July-Aug. 1961. WR 103: 69

The following are the results obtained from 425 hunter interviews conducted by high school students. The distance traveled by the hunters to their hunting site and their kill is given for 17 counties. Forty-three per cent of the hunters drove 150-200 miles and 32.2% drove over 200 miles to hunt. The hunters killed 1,604 ducks for an average of 1.33 ducks per hunter. Redheads and canvasbacks comprised 4.9% of the kill even though they were both protected. The success for the first half hour of the day (0.8 duck per man hour) was compared with the kill for the rest of the day (0.32 duck per man hour). Two hundred and fifty of the hunters (58.8%) did their hunting on private clubs or leased lands.

South, R. THE POETRY AND PROSE OF COUNTING DUCKS. OBSERVATIONS ON TEN YEARS OF WILD FOWL COUNTING IN WINDSOR GREAT PARK. Middle-Thames Nat. 12 (1959): 4-8. 1960. [From J. Anim. Ecol. 30(1), 1961.] WR 103: 69

The data from montnly counts of mallard, shoveler, pochard and tufted duck during September-April of each year between 1949 and 1959 showed a significant pattern for each, and these are discussed and shown in histograms. Mallard numbers reached a high peak in September and a smaller one in November or December and then declined. Shoveler were most numerous in November and December, with a smaller peak in February and March. Pochard were abundant, though declining steadily, throughout November-February, and numbers of tufted duck were consistently high from November to April, with a peak in November and a higher one in March.

Stotts, Vernon D., and David E. Davis. (Md. Game & Inland Fish Comm., Annapolis.) THE BLACK DUCK IN THE CHESAPEAKE BAY OF MARYLAND: BREEDING BEHAVIOR AND BIOLOGY. Chesapeake Sci. 1(3-4): 127-154, 10 figs. Dec. 1960. WR 103: 69

The study was conducted from 1953-8 on the eastern shore of Chesapeake Bay. The following were noted: (1) the nesting peak occurred about 20 Apr.; (2) first hatching in early Apr.--the last in early Aug.; (3) nests were built most extensively in woods, less so in fields and marshes, and markedly in duck blinds; (4) the nest density varied from 0.6 to 15.2 nests per acre; (5) the average number of eggs per clutch declined from 10.9 to 7.5 during the season; (6) young ?? laid smaller clutches than adult ??; (7) average incubation period was 26.2 days; (8) it was estimated that 100 ?? would produce 510 young to flying age; and (9) population in the area would decline if the mortality rate of ?? from flying age to breeding exceeded 78%.--From auth. abstr.

Tristan, D. F., and A. G. Zveskin. [THE BIOLOGY OF THE ROCK GOOSE (EULABEIA INDICA LATH.) IN TIAN SHAN.] Zool. Zhur. 39(1): 145-147. 1960. [From Biol. Abstr. 36(13), 1961, from Referat. Zhur., Biol., 1960, no. 105618.] WR 103: 69

[Original article in Russian] with English summary. Both abstract journals have long abstracts in English.

Woolfenden, Glen E. (Univ. South Fla., Tampa.) POSTCRANIAL OSTEOLOGY OF THE WATERFOWL. Bull. Fla. State Museum 6(1): 1-129, 6 figs. 1961. WR 103: 69

Wüst, Walter. DAS PROBLEM DES REIHENS DER ENTEN, BESONDERS VON ANAS STREPERA. [THE PROBLEM OF DIVING-UP OF DUCKS, PARTICULARLY OF A. STREPERA.] Proc. Intern. Ornithol. Congr. 12: 795-800. 1958 [1960]. WR 103: 69

[In German.]

CRANES, RAILS, SHOREBIRDS

Drury, William H., Jr. (Mass. Audubon Soc., South Lincoln.) THE BREEDING BIOLOGY OF SHOREBIRDS ON BYLOT ISLAND, NORTHWEST TERRITORIES, CANADA. Auk 78 (2): 176-219, 6 figs. Apr. 1961. WR 103: 70

The ecology and displays, behavior and systematics, ecological interactions of closely related species, and the ethology of distraction displays of the American golden, black-bellied, and ringed plover are compared with white-rumped and Baird's sandpipers. The text is supplemented by simple but adequate sketches that depict the typical displays of these birds (with the exception of the ringed plover).

Gordon, David C. (1347 Sherman St., Watertown, N. Y.) HERONS OF NEW YORK STATE. Kingbird 11(1): 11-18. May 1961. WR 103: 70

General information on the great blue heron, green heron, little blue heron, common egret, snowy egret, black-crowned night heron, yellow-crowned night heron, American bittern, and least bittern is presented. The nest construction, eggs, incubation time, food habits, and behavior of several of the above birds are discussed.

Kumari, A. [THE FOOD OF WADERS IN THE PEAT BOGS IN ESTONIA.] Ornithol. Kogumik 1: 195-215. 1958. [From Ibis 103a(1), 1961.] WR 103: 70

Estonian with English summary. Stomach contents of 206 waders nesting in peat bogs are tabulated and compared with waders from elsewhere.--M.J.A.

Robbins, Chandler S. (Patuxent Wildl. Res. Center, Laurel, Md.) WOODCOCK STATUS REPORT--1960. US F&WS, Spec. Sci. Rept. no. 50. iv + 26 p. June 1960. WR 103: 70

A population decrease of 10% is indicated for the area east of the Appalachians and an increase of 7% for the area west of the Appalachians (as compared with the woodcock counts for 1959).

Sheldon, William G. (Univ. Mass., Amherst.) SUMMER CREPUSCULAR FLIGHTS OF AMERICAN WOODCOCKS IN CENTRAL MASSACHUSETTS. Wilson Bull. 73(2): 126-139, 2 figs. June 1961. WR 103: 70

During a summer behavior study, 746 woodcock were captured by mist nets. The alighting grounds were situated near the center of the spring breeding grounds. There was a preponderance of juvenile ♂♂ and adult ♀♀ in the netted birds. The reasons for this discrepancy and the factors prompting these evening flights are discussed. The behavior of the birds on the alighting areas is described. These areas were dry and the food of the birds consisted primarily of larvae (fly, beetle, and moth). Band returns suggest homing behavior for all sex and age groups. A technique for sexing and aging fall-shot birds by wing characteristics was developed.--From auth. summ.

von Frisch, O. ZUR JUGENDENTWICKLUNG BRUTBIOLOGIE UND VERGLEICHENDEN ETHOLOGIE DER LIMICOLEN. [ON THE DEVELOPMENT OF YOUNG, BREEDING BIOLOGY AND COMPARATIVE ETHOLOGY OF WADERS.] Z. Tierpsychol. 16: 543-585. 1959. [From Auk 78(1), 1961.] WR 103: 70

"Behavioral observations were made on 21 species of waders and the young of 13 species hand-reared from the egg. The adult captives showed almost normal behavior and some bred. The sound utterances of the young birds are described and evaluated. Much information on the ontogeny of behavior of these birds is given. Topics such as agonistic behavior, sexual behavior, nest building, and feeding behavior are fully treated in a comparative manner."--W.C.D.

Wetherbee, David Kenneth. (Univ. Mass., Amherst.) DESCRIPTIONS OF FOUR ARTIFICIALLY HATCHED, NEONATAL LARGE-WADERS. Bird Banding 32(2): 99. Apr. 1961. WR 103: 70

The newly-hatched young of four species of large-waders: cattle egret (Bubulcus ibis), snowy egret (Leucophoyx thula), Louisiana heron (Hydranassa tricolor), and the white ibis (Eudocimus albus) are described.

OTHER BIRDS

Braaksma, Sj., W. H. Th. Knippenberg, and V. Langenhoff. EINIGE BROEDVOGELS IN NOORD-BRABANT / DE TORENVALK (FALCO TINNUNCULUS L.). [SOME BREEDING BIRDS IN NORTH BRABANT / THE KESTREL (FALCO TINNUNCULUS L.).] Limosa 33(1-2): 46-50, 1 fig. 1960. WR 103: 71

In Dutch. The status of the kestrel in the North Brabant province (Netherlands) during the period 1947-1957.

Braaksma, Sj., W. H. Th. Knippenberg, and V. Langenhoff. EINIGE BROEDVOGELS IN NOORD-BRABANT. [SOME BREEDING BIRDS IN NORTH BRABANT.] Limosa 33(3-4): 175-179. 1960. WR 103: 71

In Dutch. The status of the tawny pipit (Anthus campestris) and the little ringed plover (Charadrius dubius coronicus Gm.) in the North Brabant province of the Netherlands.

Caughley, Graeme. (New Zealand Forest Serv., Wellington, New Zealand.) THE ADELIE PENGUINS OF ROSS AND BEAUFORT ISLANDS. Dominion Museum 3(Part 4): 263-282, 8 figs. + 2 double-fold maps bound in. Aug. 1960. WR 103: 71

The six penguin rookeries on Beaufort and Ross Island are not near the limit of their tolerance to a hostile environment but are, in fact, thriving. The further southern dispersal of the species is limited by the physical barriers of fast sea-ice and the Ross Ice-shelf.

Caughley, Graeme. (New Zealand Forest Serv., Wellington, New Zealand.) THE CAPE CROZIER EMPEROR PENGUIN ROOKERY. Dominion Museum 3(Part 4): 251-262, 8 figs. Aug. 1960. WR 103: 71

In Nov. 1958 approximately 423 chicks were present at the Cape Crozier Rookery. The mortality between egg laying and the first 2 months of life was calculated to be 16%. The population has increased about 10 times since 1910. This is possibly due to a 2-mile forward movement of the shelf-ice causing a change in the microclimate of the rookery.--From auth. summ.

Fox, Glen A. (Kindersley, Saskatchewan, Canada.) A CONTRIBUTION TO THE LIFE HISTORY OF THE CLAY-COLORED SPARROW. Auk 78(2): 220-224. Apr. 1961. WR 103: 71

During the summer of 1959, several pairs of clay-colored sparrows were observed near Kindersley, Sask. The following topics are briefly discussed: environment, territory, mating, nests and nest building, renesting, eggs, egg laying and incubation, cowbird parasitism, young and their development, parental care, and nesting success in relation to the birds.

Frings, Hubert, and Mable Frings. (Pa. State Univ., University Park.) SOME BIOMETRIC STUDIES ON THE ALBATROSSES OF MIDWAY ATOLL. Condor 63(4): 304-312. July-Aug. 1961. WR 103: 71

The build-up of populations of the black-footed albatross (Diomedea nigripes) and Laysan albatross (D. immutabilis), during their annual arrival at Midway Atoll for breeding, required about a month after the arrival of the first bird to become stabilized. Black-foots prefer open, sandy beaches for nesting; Laysans prefer areas with grasses and scattered trees. During the period of arrival and egg laying, the weights of the two species were essentially the same. Males in each species were about 0.4 kg heavier than ♀♀. The head widths and bill lengths of ♂♂ were found to be significantly larger than ♀♀. These measurements could be used to determine the sex of living birds in about 90% of the cases.--From auth. summ.

Geber, G. DIE SUMPFOHREULE. [THE SHORT-EARED OWL.] Wittenberg-Lutherstadt: A. Ziemsen Verlag. 54 p., 22 photos. 1960. [From Ibis 103a(1), 1961.] WR 103: 71

In German. Up-to-date information is given on all aspects of the biology of the short-eared owl (Asio otus) with a useful map showing its notable world-wide distribution, and some good photographs taken away from the nest. The main emphasis is upon the German literature.

Getz, Lowell L. (Univ. Mich., Ann Arbor.) HUNTING AREAS OF THE LONG-EARED OWL. Wilson Bull. 73(1): 79-82. Mar. 1961. WR 103: 72

Long-eared owls feed primarily on the meadow-vole and hunt in an old-field habitat. A marsh and a wooded area near the roost were not utilized for feeding even though they possessed a larger population of small mammals. Long-eared owls, therefore, apparently prefer open, grassy areas to timbered areas.--From auth. summ.

Heinzman, George. THE AMERICAN BALD EAGLE. Nat. Hist. 70(6): 18-21, 12 figs. June-July 1961. WR 103: 72

The article deals with the factors responsible for the inability of the American bald eagle to coexist with man.

Jameson, William. THE WANDERING ALBATROSS. Doubleday & Co., Inc., Garden City, N. Y. xxvi + 132 p., 8 pls. 1961. Paperbound 95¢. WR 103: 72

This book is one of a series selected for reprinting in a paperbound format by the American Museum of Natural History. A comprehensive presentation of the life history of the wandering albatross. Descriptions are given of the behavior of the bird on the open sea and of the various plumages of the different age groups. Maps are presented showing the range and major breeding areas of the wandering albatross. The breeding behavior of the birds is described and includes the following: nest site determination, nest construction, egg laying, incubation, and rearing of young. A brief resume of the role of the albatross in the literature of the sea is presented in the chapter entitled "Fable." The chapter entitled "Flight" is entirely devoted to explaining the mechanics of the seemingly tireless flight of the albatross. The young birds, when they have fully developed their power of flight, follow their parents out to sea. Here they disperse and begin their solitary wandering over the vast ocean expanses and only return to land briefly to breed. The birds may be from 4 to 7 years old before they breed for the first time. If the birds are successful in rearing the young, they only breed in alternate years. These older birds return to the nesting islands in the early summer. The procedure of mate selection and the courtship displays are described.

Kartaschew, N. N. DIE ALKENVÖGEL DES NORDATLANTIKS. [THE AUKS OF THE NORTH ATLANTIC.] Wittenberg Lutherstadt: A. Ziemsen Verlag. 154 p., 112 illus. 1960. Price DM 8. [From Ibis 103a(1), 1961.] WR 103: 72

This book "surveys important work on the biology of auks previously available only in Russian. This work has apparently centred around the ecology of the auks, particularly in relation to their food, and anatomical adaptations both of the adults and the young. An extremely fascinating picture emerges of the interrelations, phylogenetic and ontogenetic, of skull, leg, wing, feathers, locomotion, food and nesting habits."--J.M.C.

Lockley, R. M. SHEARWATERS. Doubleday & Co., Inc., Garden City, N. Y. xvi + 257 p. + unnumbered figs. 1961. Paperbound $1.25. WR 103: 72

Another book in the paperbound series selected for reprinting by the American Museum of Natural History. The first section of the book is devoted to the life history of the Manx shearwater. The shearwaters start to assemble in early February near their breeding areas. By March the population has built up and the first eggs are laid in early May. Incubation is carried on in shifts by both parents. The ♀ only lays one egg and if it is lost or destroyed she fails to renest. Incubation takes 51 days. The shearwaters will not return to the nest to relieve their mates or to feed the chick on bright nights because of their fear of night hunting predators. The young are fledged in about 72 days. They are deserted by their parents about 9 days prior to fledging. The young are then forced by starvation to leave the nest and find their way to the sea. The adults return to the same burrow to nest each year and will mate with the same bird if possible. The average lifespan of the shearwater is about 6.4 years. Migration routes and banding recoveries of the birds are discussed. The Bay of Biscay is the major wintering area for the shearwaters breeding on Skokholm Island. The homing ability of the birds is highly developed and a discussion of various homing experiments is given. The final section of the book deals with the author's travels while seeking additional information on the Manx shearwater.

Mayfield, Harold. THE KIRTLAND'S WARBLER. Cranbrook Inst. Sci. (Bloomfield Hills, Mich.). xvi + 242 p., 9 figs., 8 pls. + colored frontispiece. 1960. $6.00. [From Condor 63(3), 1961.] WR 103: 73

During spring and summer Kirtland's warblers are limited to one small part of the range of the jack pine. The 3 factors suggested as contributing to this and which in combination are peculiar to this rare warbler's range in northern Mich. are: porous soils, ample ground cover, and unimpeded sweep of forest fires in the jack pines. The habitat requirements of this species are stated as explicitly and dependably as has been possible for any species of passerine bird. Chapters on territory, the nesting cycle, breeding behavior, and song are rich in substantive findings and each is provided with a meaningful summary. Mayfield believes that "colonies" reflect a gregarious drive and that this may be beneficial in that ♀♀ are aided in finding ♂♂ and that there is mutual stimulation to breeding resulting from ♂♂ being in communication by song. Perhaps most significant are the chapters dealing with cowbird parasitism and with productivity and mortality. It is estimated that the warblers would produce about 60% more fledglings if there were no cowbird parasitism. A pair of Kirtland's warblers produces only 1.4 fledglings per year. Annual survival of the adults is 60% and the life expectancy is about 2 years.--From review by Alden H. Miller.

Mech, Dave. (Purdue Univ., Lafayette, Ind.) THE SPARROW HAWK: OUR FANCY FALCON. Pa. Game News 32(7): 57-61, 3 figs. July 1961. WR 103: 73

The life history and habits of the sparrow hawk are briefly discussed. Included are the following: courtship, nesting, young rearing, food habits, behavior (both territorial and towards other birds of prey), and hunting methods.

Münster, W. DER NEUNTÖTER ODER ROTRUCKENWURGER. [THE RED-BACKED SHRIKE.] Wittenberg-Lutherstadt: A. Ziemsen Verlag. 74 p., 36 photos. 1958. DM 4.50. [From Ibis 103a(1), 1961.] WR 103: 73

[In German.] A popular account of the biology of Lanius collurio.

Pontius, H. BEOBACHTUNGEN ZUR BRUTBIOLOGIE VON WINTER- UND SOMMERGOLDHÄHNCHEN. [OBSERVATIONS ON THE BREEDING BIOLOGY OF THE GOLDCREST AND THE FIRECREST.] J. Ornithol. 101: 129-140. 1960. [From Ibis 103a(1), 1961.] WR 103: 73

[In German.] Details of the breeding biology of Regulus regulus and Regulus ignicapillus.

Springer, H. STUDIEN AN ROHRSÄNGER. [STUDIES ON REED WARBLERS.] Anz. Ornithol. Ges. Bayern. 5: 389-433. 1960. [From Ibis 103a(1), 1961.] WR 103: 73

[In German.] Observations made during one full season of color-banded marsh, reed and great reed warblers in Bavaria.

Tanis, J. BOERENZWALUW EN HUISZWALUW OP OOST-TERSCHELLING (1954-1959). [SWALLOWS AND HOUSE MARTINS IN EAST TERSCHELLING (1954-1959).] Natura 1960: 5-7. Jan. 1960. WR 103: 73

In Dutch.

Tanis, J. BOEREN- EN HUISZWALUW OP OOST-TERSCHELLING IN 1960. [SWALLOWS AND HOUSE MARTINS IN EAST TERSCHELLING [WEST-FRISIAN ISLANDS] IN 1960.] Vanellus 8(9): 1-5. [1961.] WR 103: 73

In Dutch. Nesting data on Hirundo rustica and Delichon urbica is analyzed by age of nest, stage of construction, and occupancy during Apr.-Oct. 1960.

Tschanz, B. ZUR BRUTBIOLOGIE DER TROTTELLUMME (URIA ALGE ALGE PONT.). [ON THE BREEDING BIOLOGY OF THE GUILLEMOT (URIA ALGE ALGE PONT.).] Behaviour 14: 1-100. 1959. [From Ibis 103a(1), 1961.] WR 103: 73

"Observations and experiments on the behaviour of the Guillemot on the breeding ledge, the egg, egg-rolling, feeding and protection of the young, the selective reaction of the young to the calls of their own parents and vice versa (especially important after colony disturbance) and the quitting of the ledge ('jumping off') by the young when half-grown."--K.E.L.S.

OTHER BIRDS--Continued

Vaughan, Richard. FALCO ELEONORAE. Ibis 103a(1): 114-128, 7 figs. on 2 pls. Jan. 1961. WR 103: 74

The known facts about Eleonora's falcon are brought together and the following topics are discussed: distinguishing characters, general habits, food, breeding, breeding distribution and numbers, migration, and predation. It is shown that the breeding season is from mid-July to Oct. Eleonora's falcon is largely a crepuscular feeder, a summer visitor to its breeding haunts, and it is dimorphic. The total world population is estimated to be less than 4,000 birds.--From auth. summ.

Vaughan, Richard. STUDIES OF LESS FAMILIAR BIRDS: 111--ELEONORA'S FALCON. Brit. Birds 54(6): 235-238, 10 figs. on 5 pls. June 1961. WR 103: 74

An abbreviated report on the Eleonora's falcon. [See above for a listing of a more detailed account.]

REPTILES AND AMPHIBIANS

Anderson, James D. (Univ. Calif., Berkeley.) THE COURTSHIP BEHAVIOR OF AMBYSTOMA MACRODACTYLUM CROCEUM. Copeia 1961(2): 132-139, 2 figs. 19 June 1961. WR 103: 74

Ambystoma macrodactylum croceum differs from most other species of Ambystoma by engaging in a pectoral amplexus and an elaborate walking sequence leading to spermatophore deposition. The spermatophore of A. m. croceum is similar to that of A. jeffersonianum and apparently differs only in proportions from other species of Ambystoma. The sperm capsule rests in a concavity at the apex of the gelatinous stalk.--From auth. summ.

Baker, James K. (Natl. Park Serv., Carlsbad Caverns Natl. Park, Carlsbad, N. Mex.) DISTRIBUTION OF AND KEY TO THE NEOTENIC EURYCEA OF TEXAS. Southwestern Nat. 6(1): 27-32, 1 fig. 10 June 1961. WR 103: 74

Bragg, Arthur N. (Univ. Okla., Norman.) THE BEHAVIOR AND COMPARATIVE DEVELOPMENTAL RATES IN NATURE OF TADPOLES OF A SPADEFOOT, A TOAD, AND A FROG. Herpetologica 17(2): 80-84. 11 July 1961. WR 103: 74

The 3 spp., Scaphiopus holbrooki hurteri, Bufo terrestris charlesmithi, and Rana pipiens berlandieri, have inherently different developmental rates. The tadpoles of all 3 spp. were subjected to exactly the same environmental conditions. The spadefoots were much the fastest, the toads intermediate, and the frogs slowest in developmental rates.

Carr, Archie, and Larry Ogren. (Univ. Fla., Gainesville.) THE ECOLOGY AND MIGRATIONS OF SEA TURTLES, 4. THE GREEN TURTLE IN THE CARIBBEAN SEA. Am. Museum Nat. Hist. Bull. vol. 121, article 1. 48 p., 26 figs. 1960. WR 103: 74

Of 1178 mature female green turtles banded at Tortuguero (Costa Rica) during 5 seasons, there have been 35 international recoveries which strengthen the assumption that the green turtle is migratory. Returns reveal that a 3-year nesting schedule predominates. However, a minority nest each 2 years, but 2-year nesters are not found in all populations. Renesting occurs at Tortuguero at average intervals of 12.5 days. The average incubation period is 57.5 days. Nesting behavior, group facilitation in emerging, hatching, and site tenacity are discussed. Results of a series of informal field tests of orientation capacity and flexibility in hatchlings and in females on shore to nest are summarized.--From auth. summ.

Cochran, Doris M. TYPE SPECIMENS OF REPTILES AND AMPHIBIANS IN THE UNITED STATES NATIONAL MUSEUM. Smithsonian Inst., USNM, Bull. no. 220. xv + 291 p. 1961. Available at $1.25 from Supt. Documents. WR 103: 74

Fitch, Henry S. (Univ. Kans., Lawrence.) AUTECOLOGY OF THE COPPERHEAD. Univ. Kans. Publ., Museum Nat. Hist., 13(4): 85-288, 26 figs., 8 pls. 30 Nov. 1960. WR 103: 74

A field study of a local population of the copperhead was conducted during 1948-59. A total of 1,532 copperheads was recorded 2,018 times. Geographic distribution of the copperhead corresponds closely with the extent of the deciduous forest biome of eastern North America, exclusive of its glaciated northern part. Throughout most of its range, the

copperhead prefers rock ledges in hilly situations. There is a pronounced tendency to keep within a definite area or home range. At temperatures below 10 C or 11 C, the snakes are incapable of spontaneous movement. Temperatures between 26 C and 28 C seem to be optimum. Females produce first litter at approximately 3 years old and thereafter produce litters in alternate years. Young feed on small vertebrates and certain insects. Voles (Microtus), mice (Peromyscus), and shrews (Blarina) are the most important items in the diet of adult snakes. The red-tailed hawk is the most important predator of the copperhead on the study area. The danger of copperheads to humans is discussed. Control methods are presented. A 12-page bibliography is also included.--From auth. summ.

Fitch, Henry S., and T. Paul Maslin. OCCURRENCE OF THE GARTER SNAKE, THAMNOPHIS SIRTALIS, IN THE GREAT PLAINS AND ROCKY MOUNTAINS. Univ. Kans. Publ., Museum Nat. Hist., 13(5): 289-308, 4 figs. 10 Feb. 1961. WR 103: 75

Hecht, Max. (Queens Coll., Flushing, N. Y.) THE HISTORY OF THE FROGS. Anat. Record 138(3): 356. 1960. [From Biol. Abstr. 36(11), 1961.] WR 103: 75
Abstract.

Heckrotte, Carlton. THE EFFECT OF ENVIRONMENTAL FACTORS ON THE LOCOMOTORY ACTIVITY OF THE PLAINS GARTER SNAKE (THAMNOPHIS RADIX RADIX). Ph.D. thesis, Univ. Ill. 66 p. 1960. [From Dissertation Abstr. 21(10), 1961.] WR 103: 75
Activity of 17 snakes for a 4-month period was recorded under out-of-door conditions. In general, an increase in both temperature and humidity increased activity. At temperatures above 31 C, activity was depressed.

Highton, Richard, and Thomas Savage. (Univ. Md., College Park.) FUNCTIONS OF THE BROODING BEHAVIOR IN THE FEMALE RED-BACKED SALAMANDER, PLETHODON CINEREUS. Copeia 1961(1): 95-97. 1961. WR 103: 75
The presence of the ♀ P. cinereus promoted growth and utilization of yolk material as well as survival. In the laboratory, some of the young ♀♀ ate their eggs soon after deposition. Embryos separated from the ♀ had less than a third of the survival rate of those incubated by the ♀. Incubated hatchlings averaged 6.6 mm longer than non-incubated ones.--From auth. summ.

Hutchison, Victor H. (Duke Univ., Durham, N. C.) CRITICAL THERMAL MAXIMA IN SALAMANDERS. Physiol. Zool. 34(2): 92-125, 18 figs. Apr. 1961. WR 103: 75

Johnson, Fred Clifford II. CRYPTIC SPECIATION IN THE HYLA VERSICOLOR COMPLEX. Ph.D. thesis, Univ. Texas. 126 p. 1961. [From abstr. in Dissertation Abstr. 21(12), 1961.] WR 103: 75
Hyla versicolor chrysoscelis is elevated to Hyla chrysoscelis based upon differences from H. versicolor in call-type, morphology, hybrid inviability, hybrid breakdown, and ethological isolation.

Kaplan, Harold M., and Loretta Yoh. (Southern Ill. Univ., Carbondale.) TOXICITY OF COPPER FOR FROGS. Herpetologica 17(2): 131-135. 11 July 1961. WR 103: 75
Summary: Frogs exposed continuously, over a range of environmental temperatures, to aqueous solutions of copper sulfate exceeding 0.001 per cent concentration are not apt to survive. The duration of life decreases with increasing concentration of the copper sulfate. The small concentration of copper ordinarily existing in tap water has no measurable effects upon Rana pipiens.

Larson, Mervin W. (Univ. Calif., Berkeley.) THE CRITICAL THERMAL MAXIMUM OF THE LIZARD SCELOPORUS OCCIDENTALIS OCCIDENTALIS BAIRD AND GIRARD. Herpetologica 17(2): 113-122, 2 figs. 11 July 1961. WR 103: 75
The mean critical thermal maximum temperature of Sceloporus occidentalis occidentalis varies at least 0.8 C under natural environmental conditions and can be altered experimentally. Fasting with excessive body weight loss significantly lowers the level of the critical thermal maximum temperature. The temperature means of the normal activity ranges were found to be similar for animals of both sexes. There is a closer relationship between body temperature and substratum temperature than to air temperature. The eccritic body temperature varies from approximately 30 C to 38 C.--From auth. summ. and concl.

OTHER BIRDS--Continued

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The known facts about Eleonora's falcon are brought together and the following topics are discussed: distinguishing characters, general habits, food, breeding, breeding distribution and numbers, migration, and predation. It is shown that the breeding season is from mid-July to Oct. Eleonora's falcon is largely a crepuscular feeder, a summer visitor to its breeding haunts, and it is dimorphic. The total world population is estimated to be less than 4,000 birds.--From auth. summ.

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Carr, Archie, and Larry Ogren. (Univ. Fla., Gainesville.) THE ECOLOGY AND MIGRATIONS OF SEA TURTLES, 4. THE GREEN TURTLE IN THE CARIBBEAN SEA. Am. Museum Nat. Hist. Bull. vol. 121, article 1. 48 p., 26 figs. 1960. WR 103: 74

Of 1178 mature female green turtles banded at Tortuguero (Costa Rica) during 5 seasons, there have been 35 international recoveries which strengthen the assumption that the green turtle is migratory. Returns reveal that a 3-year nesting schedule predominates. However, a minority nest each 2 years, but 2-year nesters are not found in all populations. Renesting occurs at Tortuguero at average intervals of 12.5 days. The average incubation period is 57.5 days. Nesting behavior, group facilitation in emerging, hatching, and site tenacity are discussed. Results of a series of informal field tests of orientation capacity and flexibility in hatchlings and in females on shore to nest are summarized.--From auth. summ.

Cochran, Doris M. TYPE SPECIMENS OF REPTILES AND AMPHIBIANS IN THE UNITED STATES NATIONAL MUSEUM. Smithsonian Inst., USNM, Bull. no. 220. xv + 291 p. 1961. Available at $1.25 from Supt. Documents. WR 103: 74

Fitch, Henry S. (Univ. Kans., Lawrence.) AUTECOLOGY OF THE COPPERHEAD. Univ. Kans. Publ., Museum Nat. Hist., 13(4): 85-288, 26 figs., 8 pls. 30 Nov. 1960. WR 103: 74

A field study of a local population of the copperhead was conducted during 1948-59. A total of 1,532 copperheads was recorded 2,018 times. Geographic distribution of the copperhead corresponds closely with the extent of the deciduous forest biome of eastern North America, exclusive of its glaciated northern part. Throughout most of its range, the

copperhead prefers rock ledges in hilly situations. There is a pronounced tendency to keep within a definite area or home range. At temperatures below 10 C or 11 C, the snakes are incapable of spontaneous movement. Temperatures between 26 C and 28 C seem to be optimum. Females produce first litter at approximately 3 years old and thereafter produce litters in alternate years. Young feed on small vertebrates and certain insects. Voles (Microtus), mice (Peromyscus), and shrews (Blarina) are the most important items in the diet of adult snakes. The red-tailed hawk is the most important predator of the copperhead on the study area. The danger of copperheads to humans is discussed. Control methods are presented. A 12-page bibliography is also included.--From auth. summ.

Fitch, Henry S., and T. Paul Maslin. OCCURRENCE OF THE GARTER SNAKE, THAMNOPHIS SIRTALIS, IN THE GREAT PLAINS AND ROCKY MOUNTAINS. Univ. Kans. Publ., Museum Nat. Hist., 13(5): 289-308, 4 figs. 10 Feb. 1961. WR 103: 75

Hecht, Max. (Queens Coll., Flushing, N. Y.) THE HISTORY OF THE FROGS. Anat. Record 138(3): 356. 1960. [From Biol. Abstr. 36(11), 1961.] WR 103: 75
Abstract.

Heckrotte, Carlton. THE EFFECT OF ENVIRONMENTAL FACTORS ON THE LOCOMOTORY ACTIVITY OF THE PLAINS GARTER SNAKE (THAMNOPHIS RADIX RADIX). Ph.D. thesis, Univ. Ill. 66 p. 1960. [From Dissertation Abstr. 21(10), 1961.] WR 103: 75
Activity of 17 snakes for a 4-month period was recorded under out-of-door conditions. In general, an increase in both temperature and humidity increased activity. At temperatures above 31 C, activity was depressed.

Highton, Richard, and Thomas Savage. (Univ. Md., College Park.) FUNCTIONS OF THE BROODING BEHAVIOR IN THE FEMALE RED-BACKED SALAMANDER, PLETHODON CINEREUS. Copeia 1961(1): 95-97. 1961. WR 103: 75
The presence of the ♀ P. cinereus promoted growth and utilization of yolk material as well as survival. In the laboratory, some of the young ♀♀ ate their eggs soon after deposition. Embryos separated from the ♀ had less than a third of the survival rate of those incubated by the ♀. Incubated hatchlings averaged 6.6 mm longer than non-incubated ones.--From auth. summ.

Hutchison, Victor H. (Duke Univ., Durham, N. C.) CRITICAL THERMAL MAXIMA IN SALAMANDERS. Physiol. Zool. 34(2): 92-125, 18 figs. Apr. 1961. WR 103: 75

Johnson, Fred Clifford II. CRYPTIC SPECIATION IN THE HYLA VERSICOLOR COMPLEX. Ph.D. thesis, Univ. Texas. 126 p. 1961. [From abstr. in Dissertation Abstr. 21(12), 1961.] WR 103: 75
Hyla versicolor chrysoscelis is elevated to Hyla chrysoscelis based upon differences from H. versicolor in call-type, morphology, hybrid inviability, hybrid breakdown, and ethological isolation.

Kaplan, Harold M., and Loretta Yoh. (Southern Ill. Univ., Carbondale.) TOXICITY OF COPPER FOR FROGS. Herpetologica 17(2): 131-135. 11 July 1961. WR 103: 75
Summary: Frogs exposed continuously, over a range of environmental temperatures, to aqueous solutions of copper sulfate exceeding 0.001 per cent concentration are not apt to survive. The duration of life decreases with increasing concentration of the copper sulfate. The small concentration of copper ordinarily existing in tap water has no measurable effects upon Rana pipiens.

Larson, Mervin W. (Univ. Calif., Berkeley.) THE CRITICAL THERMAL MAXIMUM OF THE LIZARD SCELOPORUS OCCIDENTALIS OCCIDENTALIS BAIRD AND GIRARD. Herpetologica 17(2): 113-122, 2 figs. 11 July 1961. WR 103: 75
The mean critical thermal maximum temperature of Sceloporus occidentalis occidentalis varies at least 0.8 C under natural environmental conditions and can be altered experimentally. Fasting with excessive body weight loss significantly lowers the level of the critical thermal maximum temperature. The temperature means of the normal activity ranges were found to be similar for animals of both sexes. There is a closer relationship between body temperature and substratum temperature than to air temperature. The eccritic body temperature varies from approximately 30 C to 38 C.--From auth. summ. and concl.

Legler, John M. NATURAL HISTORY OF THE ORNATE BOX TURTLE, TERRAPENE ORNATA ORNATA AGASSIZ. Univ. Kans. Publ. Museum Nat. Hist. 11(10): 527-669, 29 figs., 16 pls. 7 Mar. 1960. WR 103: 76

A comprehensive report derived from extensive field and laboratory studies and a review of the literature. Field studies of marked populations were made in Douglas County, Kans. Preferred habitat in northeastern Kans. was open rolling grassland grazed by cattle. The method of formation of growth rings is described. Growth was studied by measuring growth rings on the epidermal laminae, by measuring recaptured turtles in the field, and by periodically measuring captive hatchlings and juveniles. Population densities in certain areas of favorable habitat were from 2.6 to 6.3 turtles per acre. More ♂♂ than ♀♀ were captured. Home ranges averaged approximately 5.6 acres. Topics include: distribution, habitats, reproduction, growth, seasonal and daily activity and behavior, temperature tolerance, food habits, population density, locomotion, home ranges, enemies, and parasites.--Lucille Stickel.

Legler, John M., and Robert G. Webb. (Univ. Utah, Salt Lake City.) REMARKS ON A COLLECTION OF BOLSON TORTOISES GOPHERUS FLAVOMARGINATUS. Herpetologica 17(1): 26-36, 1 fig. 15 Apr. 1961. WR 103: 76

The distribution and habitat, habits and reproduction, coloration, squamation, osteology, size and growth, and sexual dimorphism of Gopherus flavomarginatus are discussed.

McDonald, Micheal. (Univ. Md., College Park.) THE SNAPPING TURTLE. Md. Conserv. 38(3): 8-12, 4 figs. May-June 1961. WR 103: 76

An adult snapper may weigh from 10-30 pounds. The ♀ is slightly larger than the ♂. The snapper is omnivorous--feeding on fish, waterfowl, frogs, snakes, birds, and any mammals he can overpower. Mating occurs during late Apr.-Nov. and combat between ♂♂ is common in this period. The ♀ digs her nest 3-75 feet inland and lays 30-70 eggs. The incubation period is usually 80-90 days. It takes the snapper from 2-4 years to reach maturity, and the majority can be expected to live about half-a-century.

McDuffie, George Thomas. STUDIES ON THE ECOLOGY AND LIFE HISTORY OF THE COPPERHEAD, AGKISTRODON CONTORTRIX MOKESON (DAUDIN), IN OHIO. Ph.D. thesis, Univ. Cincinnati. 85 p. 1960. [From Dissertation Abstr. 21(11), 1961.] WR 103: 76

The following general conclusions are drawn by the author: copperheads return to the same dens each year and occur only in unglaciated Ohio and in a few similar habitats; gravid ♀♀ are gregarious and often live together in logs and slab piles; ♂♂ have a greater range and travel more than ♀♀; copperheads are nocturnal in summer and are most active between 7 p.m. and 1 a.m., and at temperatures between 25 C and 29 C; adult copperheads feed on mice and larvae, whereas the young prefer cold-blooded prey; evidence is presented which indicates that copperheads may have a biannual reproductive cycle, and that they may sometimes breed in the fall.

Organ, James A. (Univ. Mich., Ann Arbor.) THE EGGS AND YOUNG OF THE SPRING SALAMANDER, PSEUDOTRITON PORPHYRITICUS. Herpetologica 17(1): 53-56, 1 fig. 15 Apr. 1961. WR 103: 76

The first 2 groups of P. porphyriticus eggs were collected in the summers during 1956-8. An attempt was made to hatch eggs from each group, but both times the young hatched prematurely. Available information indicates that the species has a fall hatching period with little growth occurring the first winter.

Tinkle, Donald W. (Texas Technol. Coll., Lubbock.) POPULATION STRUCTURE AND REPRODUCTION IN THE LIZARD UTA STANSBURIANA STEJNEGERI. Am. Midland Nat. 66(1): 206-234, 12 figs. July 1961. WR 103: 76

Three populations of the lizard Uta stansburiana stejnegeri in western Texas were studied by mass sampling during a two-year period. Sex ratios were not significantly different from 50 : 50 in any population, age group, or season. All lizards mature at the age of one year or less. Despite differences in climatic conditions and other factors, almost all lizards are reproductive during the mating season. Reproductive potential is a function of size of the

♀ and the season. Larger ♀♀ produce larger clutches and clutch size is larger early in the reproductive season. Methods are discussed by which the reproductive potential may be calculated accurately. Data are presented on ratio of juveniles to adults in the populations, on size and age at maturity, on testis development and regression, on corpora lutea and atretic follicles, on gonad development in juvenile lizards, seasonal cycles in the ovaries, and interuterine migration of ova.--From auth. abstr.

Tinkle, Donald W., and Roger Conant. (Texas Technol. Coll., Lubbock.) THE REDISCOVERY OF THE WATER SNAKE, NATRIX HARTERI, IN WESTERN TEXAS, WITH THE DESCRIPTION OF A NEW SUBSPECIES. Southwestern Nat. 6(1): 33-44, 4 figs. 10 June 1961. WR 103: 77

Viosca, Percy, Jr. (La. Wild Life & Fisheries Comm., New Orleans 16.) TURTLES, TAME AND TRUCULENT. La. Conserv. 13(7-8): 5-8, 7 figs. July-Aug. 1961. WR 103: 77

Throughout the United States, exclusive of Alaska and Hawaii, there exist about 32 species of turtles. A listing of the 21 species of turtles found in La. is given. This list includes both common and scientific names and where the turtles can be found in La. A brief discussion is given on the habits and behavior of the turtles.

Webb, Robert Gravem. RECENT SOFTSHELL TURTLES OF NORTH AMERICA (FAMILY TRIONYCHIDAE). Ph.D. thesis, Univ. Kans. 498 p. 1960. [Long abstr. in Dissertation Abstr. 21(12), 1961.] WR 103: 77

Wilhoft, D. C., and W. B. Quay. (Univ. Calif., Berkeley.) TESTICULAR HISTOLOGY AND SEASONAL CHANGES IN THE LIZARD, SCELOPORUS OCCIDENTALIS. J. Morphol. 108(1): 95-106, 9 figs. on 4 pls. Jan. 1961. WR 103: 77

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